

PROCEEDINGS
OF THE
AMERICAN SOCIETY
OF
CIVIL ENGINEERS

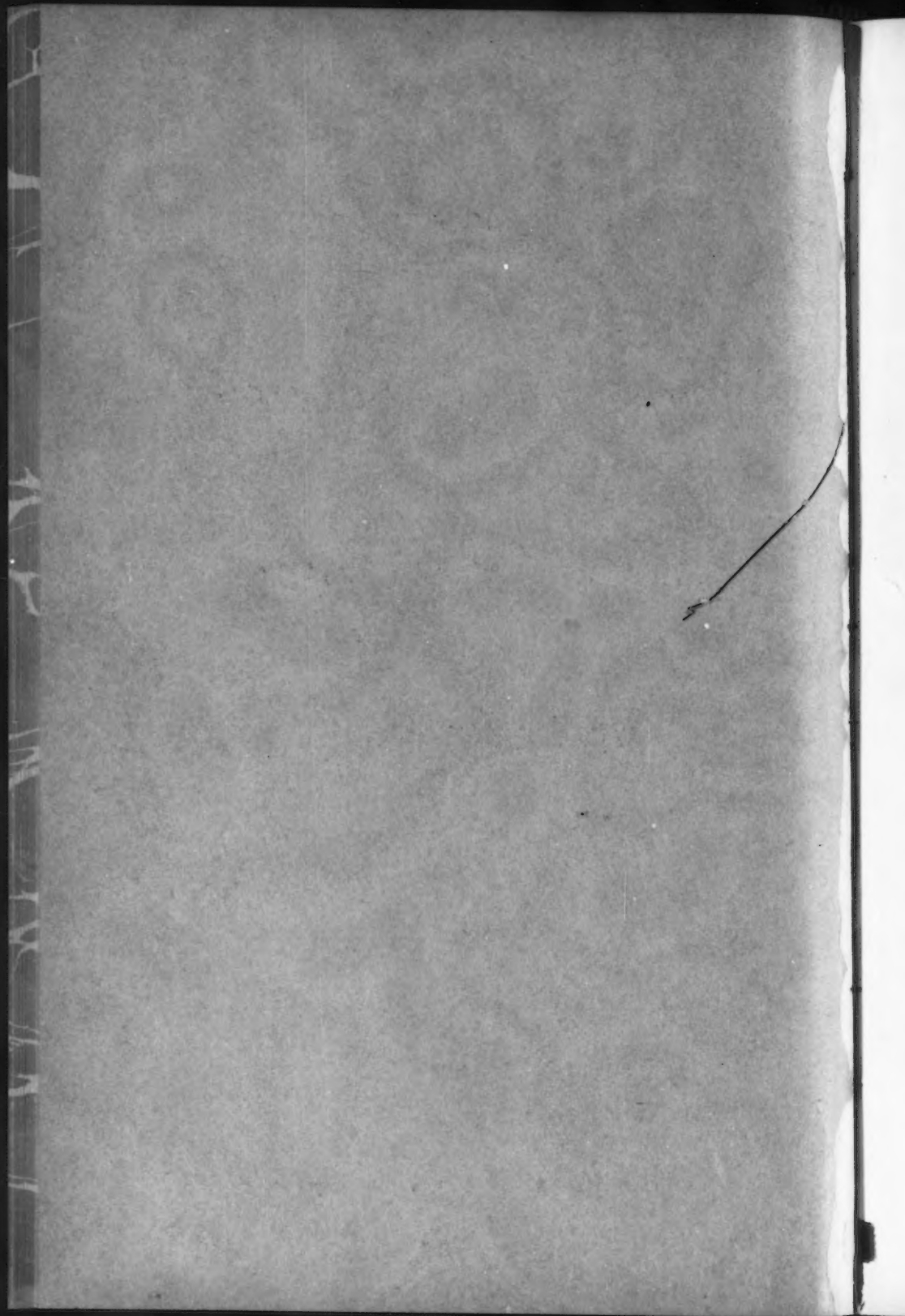
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PROCEEDINGS
OF THE
AMERICAN SOCIETY
OF
CIVIL ENGINEERS
(INSTITUTED 1852)

VOL. XXXVII—No. 8

OCTOBER, 1911

Edited by the Secretary, under the direction of the Committee on Publications.

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NEW YORK 1911

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Term expires January, 1913:

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ON STEEL COLUMNS AND STRUTS: Austin L. Bowman, Alfred P. Boller, Emil Gerber, Charles F. Loweth, Ralph Modjeski, Frank C. Osborn, George H. Pegram, Lewis D. Rights, George F. Swain, Emil Swensson, Joseph R. Worcester.

ON BITUMINOUS MATERIALS FOR ROAD CONSTRUCTION: W. W. Crosby, A. W. Dean, H. K. Bishop, A. H. Blanchard.

The House of the Society is open from 9 A. M. to 10 P. M. every day, except Sundays, Fourth of July, Thanksgiving Day, and Christmas Day.

HOUSE OF THE SOCIETY—220 WEST FIFTY-SEVENTH STREET, NEW YORK.

TELEPHONE NUMBER.....5913 Columbus.
CABLE ADDRESS....."Ceas, New York."

AMERICAN SOCIETY OF CIVIL ENGINEERS

INSTITUTED 1852

PROCEEDINGS

This Society is not responsible for any statement made or opinion expressed
in its publications.

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MINUTES OF MEETINGS

OF THE SOCIETY

September 20th, 1911.—The meeting was called to order at 8.30 P. M.; George H. Pegram, M. Am. Soc. C. E., in the chair; Chas. Warren Hunt, Secretary; and present, also, 87 members and 19 guests.

A paper by William J. Millard, Jun. Am. Soc. C. E., entitled "Mule-Back Reconnaissances," was presented by the Secretary, who also read communications on the subject from Messrs. George D. Snyder and Ernest McCullough. The paper was discussed orally by F. Lavis, M. Am. Soc. C. E.

The Secretary also presented a paper by Lyman E. Bishop, Jun. Am. Soc. C. E., entitled "Economic Canal Location in Uniform Countries," and read communications on the subject from Messrs. H. J. Doolittle, C. E. Shipman, and the author.

The Secretary announced the death of:

CHARLES MORTON EMMONS, elected Member, April 1st, 1903; died September 14th, 1911.

Adjourned.

October 4th, 1911.—The meeting was called to order at 8.30 P. M.; President Endicott in the chair; Chas. Warren Hunt, Secretary; and present, also, 146 members and 18 guests.

The minutes of the meetings of the Annual Convention and of September 6th, 1911, were approved as printed in *Proceedings* for September, 1911.

A paper by Wilson Sherman Kinnear, M. Am. Soc. C. E., entitled "The Detroit River Tunnel," was presented by the Secretary, who also read communications on the subject from Messrs. H. A. Carson, H. F. Dunham, and Charles B. Buerger.

The Secretary announced the election of the following candidates on October 3d, 1911:

AS MEMBERS.

WILLIAM BROWN, Glasgow, Scotland.
WILLIAM ARNOLD CHRISTIAN, Chicago, Ill.
ALBERT FORSTER DAMON, JR., Darby, Pa.
CHARLES EVARISTE D'ORNELLAS, Buenos Aires, Argentine Republic.
AMOS ALFRED FRIES, Washington, D. C.
BURR POWELL HARRISON, Baltimore, Md.
WILLIAM JULIUS KROME, Marathon, Fla.
RALPH STECK McCORMICK, Sault Ste. Marie, Ont., Canada.
JAMES HERBERT HAWKSWORTH MUIRHEAD, Havana, Cuba.
ALEXANDER JOSEPH NORRIS, Lima, Peru.
JAMES CLARENCE OGDEN, New York City.

AS ASSOCIATE MEMBERS.

AUGUSTINE HAINES AYERS, Suffield, Alta., Canada.
CHARLES DREWRY BATSON, St. Paul, Minn.
JOSEPH EDGAR BELL, Hazen, Nev.
HERBERT ERNEST BELLAMY, Brisbane, Queensland, Australia.
LEMUEL BERRY JOSEPH BRYAN, Chattanooga, Tenn.
CLARENCE ELMORE CARTER, Jerome, Idaho.
GEORGE CROMWELL, Verdi, Nev.
EDSON JOSEPH DAVIS, Brown, Cal.
JOSEPH HERBERT DIGBY, Manãos, Brazil.
WILLIAM WATKYN EDWARDS, Hydraulic, B. C., Canada.
KENNETH BALES EMERSON, New York City.
DONALD PATTON FALCONER, Rochester, N. Y.
EARL NESBY FLOYD, Guild, Tenn.
WILLIAM LAWRENCE FULTON, Burlington, Vt.
JAMES PELTON GALLAGER, Muskogee, Okla.
WARREN GARDNER, Brown Station, N. Y.
JAMES SPENCER HALL, Bridgeport, Conn.
JAMES WILSON HORTENSTINE, Guantanamo, Cuba.

JOEL DEWITT JUSTIN, West Shokan, N. Y.
CHARLES ELLIOT LANE, Baltimore, Md.
PHILIP GEORGE LANG, JR., Baltimore, Md.
JOHN ORR MACFEETERS, Brooklyn, N. Y.
FRANK HENRY MASON, Waterville, Me.
CHARLES CHESTER MORRIS, Corregidor, Philippine Islands.
THOMAS EDWARD MORRISON, St. Louis, Mo.
OSCAR BENJAMIN NELSON, Minneapolis, Minn.
LEON HAGOP NISHKIAN, Los Angeles, Cal.
HAROLD VAN DYKE OWENS, Utica, N. Y.
THOMAS ELMER PHIPPS, Snoqualmie, Wash.
GEORGE MOSES PURVER, Brooklyn, N. Y.
HORACE PATTON RAMEY, Chicago, Ill.
ORRIN RANDOLPH, San Acacio, Colo.
HOWARD SAWYER REED, Phoenix, Ariz.
WALDEMAR SPAULDING RICHMOND, Detroit, Mich.
WILLIAM HENRY ROSE, Washington, D. C.
RALPH ERNEST SEXTON, Culebra, Canal Zone, Panama.
FRED ORDWAY SHUTTS, San Francisco, Cal.
WYLLYS HARD TAYLOR, Manila, Philippine Islands.
GEORGE LOUIS THON, Chicago, Ill.
REENEN JACOB VAN REENEN, Cradock, Cape Province, South Africa.
CLIFTON WHITE WILDER, Brooklyn, N. Y.

AS ASSOCIATES.

ALBERT LEREAUX MARSH, New York City.
GEORGE CHEEVER SCHERER, Montgomery, Ala.

AS JUNIORS.

ERNEST SAMUEL ALDERMAN, Berkeley, Cal.
GEORGE ERLE BEGGS, New York City.
JOSEPH JENKS CHAMBERLAIN, JR., Ithaca, N. Y.
JACOB XENAB COHEN, New York City.
HERBERT JUDSON FLAGG, McMinnville, Ore.
ROY CECIL GRAY, Keytesville, Mo.
LAURANCE HASTINGS HART, Buffalo, N. Y.
FRANK MILES KUCHAR, Schuylerville, N. Y.
JOHN STALKER LONGWELL, Boise, Idaho.
FREDERIC WILLIAM LYON, Pittsburg, Pa.
SAMUEL ALEXANDER MCWILLIAMS, Powell, Wyo.
HARRY MONETT, Berkeley, Cal.
MAURICE GIESY PARSONS, Bishop Creek, Cal.
CARL DE FORREST POLLOCK, Seattle, Wash.

RALPH EWART ROBSON, Berkeley, Cal.
CHARLES BURR SPENCER, New York City.
GEORGE ERNEST STREHAN, New York City.
ARTHUR HUBESTY TURNER, Atlanta, Ga.

The Secretary announced the transfer of the following candidates on October 3d, 1911:

FROM ASSOCIATE MEMBER TO MEMBER.

WILLIAM THOMAS BARNES, Newton Center, Mass.
JAMES HENRY HAYLOW, Memphis, Tenn.
RICHARD SCHERMERHORN, Jr., New York City.

FROM JUNIOR TO ASSOCIATE MEMBER.

JOHN SEAGER ADEY, Chicago, Ill.
JAMES EDWARD CAHILL, Chicago, Ill.
FERNANDO CARBAJAL, Lima, Peru.
CHARLES MOSS DAVIS, Fort Worth, Tex.
ELIJAH HERBERT DUNMIRE, Lawrence, Kans.
LINCOLN ELLSWORTH, New York City.
HARRY CROCKER HUTCHINS, New York City.
ALBERT JEFFERSON MAYELL, New York City.
PAUL LEON PIERCE, Raleigh, N. C.
JOHN BERNARD SWEENEY, McKeesport, Pa.
WILLIAM EARL WELLER, Schenectady, N. Y.

The Secretary announced the following deaths:

JOHN BOND ATKINSON, elected Member September 5th, 1877; died September 21st, 1911.

CHARLES ARTHUR MATCHAM, elected Member June 5th, 1901; died September 22d, 1911.

JAMES SMITH, elected Associate Member November 1st, 1905; Member March 31st, 1908; died February 20th, 1911.

THOMAS WILLIAM ROSTAD TEIGEN, elected Junior September 5th, 1905; Associate Member December 1st, 1908; died September 20th, 1911.

WILLIS TUBBS TURNER, elected Associate Member December 7th, 1904; died September 7th, 1911.

SAMUEL DALE WATKINS, elected Junior March 31st, 1908; died September 7th, 1911.

Adjourned.

OF THE BOARD OF DIRECTION

(Abstract)

October 3d, 1911.—President Endicott in the chair; Chas. Warren Hunt, Secretary; and present, also, Messrs. Kimball, Knap, Loomis, Ridgway, Stott, Strobel, and Thompson.

A Special Committee to Formulate Principles and Methods for the Valuation of Railroad Property and Other Public Utilities, was appointed as follows: H. M. Bylesby, Thomas H. Johnson, Leonard Metcalf, Alfred Noble, William G. Raymond, Jonathan P. Snow, Frederic P. Stearns.

The resignation of Edward Herbert Stone as a Member was accepted.

Ballots for membership were canvassed, resulting in the election of 11 Members, 41 Associate Members, 2 Associates, and 18 Juniors, and the transfer of 11 Juniors to the grade of Associate Member.

Three Associate Members were transferred to the grade of Member. Applications were considered, and other routine business transacted.

Adjourned.

ANNOUNCEMENTS

The House of the Society is open from 9 A. M. to 10 P. M., every day, except Sundays, Fourth of July, Thanksgiving Day, and Christmas Day.

FUTURE MEETINGS

November 1st, 1911.—8.30 P. M.—A regular business meeting will be held and two papers will be presented for discussion, as follows: "Some of the Properties of Oil-Mixed Portland Cement Mortar," by Logan Waller Page, M. Am. Soc. C. E., and "Reinforced Concrete Bridge Across the Almendares River, Havana, Cuba," by Eugene Klapp and W. J. Douglas, Members, Am. Soc. C. E.

These papers were printed in *Proceedings* for September, 1911.

November 15th, 1911.—8.30 P. M.—Two papers will be presented for discussion at this meeting, as follows: "A Reinforced Concrete Stand-Pipe," by W. W. Clifford, Jun. Am. Soc. C. E., and "Retraction in the Tensile Strength of Cement," by J. M. O'Hara, Assoc. M. Am. Soc. C. E.

Mr. Clifford's paper was printed in *Proceedings* for September, 1911, and Mr. O'Hara's paper appears in this number of *Proceedings*.

December 6th, 1911.—8.30 P. M.—This will be a regular business meeting. Two papers will be presented for discussion: "Experiments on the Flow of Water in Wood Stave Pipes," by E. A. Moritz, Assoc. M. Am. Soc. C. E., and "The St. Croix River Bridge," by C. A. P. Turner, M. Am. Soc. C. E.

These papers are printed in this number of *Proceedings*.

December 20th, 1911.—8.30 P. M.—At this meeting two papers will be presented for discussion, as follows: "Construction of the Morena Rock Fill Dam, San Diego County, California," by M. M. O'Shaughnessy, M. Am. Soc. C. E., and "The Halligan Dam: A Reinforced Masonry Structure," by G. N. Houston, M. Am. Soc. C. E.

These papers are printed in this number of *Proceedings*.

SPECIAL MEETINGS FOR TOPICAL DISCUSSION

Meetings for the discussion of "Road Construction and Maintenance" will be held on Friday and Saturday, January 19th and 20th, 1912 (the days following the close of the Annual Meeting of the Society).

As soon as arrangements are completed, the hours for holding these meetings, topics for discussion, names of speakers, etc., will be published.

**LIST OF NOMINEES FOR THE OFFICES TO BE FILLED AT THE
ANNUAL ELECTION, JANUARY 17th, 1912.**

The following list of nominees for the offices to be filled at the Annual Meeting, January 17th, 1912, received from the Nominating Committee, was presented to the Board of Direction at its meeting on September 5th, 1911. The list has already been mailed to all Corporate Members:

For President, to serve one year:

JOHN A. OCKERSON, St. Louis, Mo.

For Vice-Presidents, to serve two years:

CHARLES S. CHURCHILL, Roanoke, Va.

CHARLES D. MARX, Stanford University, Cal.

For Treasurer, to serve one year:

JOSEPH M. KNAP, New York City.

For Directors, to serve three years:

LINCOLN BUSH, New York City.....	District No. 1
T. KENNARD THOMSON, New York City.....	District No. 1
EMIL GERBER, Pittsburg, Pa.....	District No. 4
WILLIAM CAIN, Chapel Hill, N. C.....	District No. 6
E. C. LEWIS, Nashville, Tenn.....	District No. 6
W. A. CATTELL, San Francisco, Cal.....	District No. 7

SEARCHES IN THE LIBRARY

In January, 1902, the Secretary was authorized to make searches in the Library, upon request, and to charge therefor the actual cost to the Society for the extra work required. Since that time many searches have been made, and bibliographies and other information on special subjects furnished.

The resulting satisfaction, to the members, who have made use of the resources of the Society in this manner, has been expressed frequently, and leaves little doubt that, if it were generally known to the membership that such work would be undertaken, many would avail themselves of it.

The cost is trifling compared with the value of the time of an engineer who looks up such matters himself, and the work can be performed quite as well, and much more quickly, by persons familiar with the Library.

In asking that such work be undertaken, members should specify clearly the subject to be covered, and whether references to general books only are desired, or whether a complete bibliography, involving search through periodical literature, is desired.

In reference to this work, the Appendices* to the Annual Reports of the Board of Direction for the years ending December 31st, 1906, and December 31st, 1910, contain summaries of all searches made to date.

PAPERS AND DISCUSSIONS

Members and others who take part in the oral discussions of the papers presented are urged to revise their remarks promptly. Written communications from those who cannot attend the meetings should be sent in at the earliest possible date after the issue of a paper in *Proceedings*.

All papers accepted by the Publication Committee are classified by the Committee with respect to their availability for discussion at meetings.

Papers which, from their general nature, appear to be of a character suitable for oral discussion, will be published as heretofore in *Proceedings*, and set down for presentation to a future meeting of the Society, and, on these, oral discussions, as well as written communications, will be solicited.

All papers which do not come under this heading, that is to say, those which, from their mathematical or technical nature, in the opinion of the Committee, are not adapted to oral discussion, will not be scheduled for presentation to any meeting. Such papers will be published in *Proceedings* in the same manner as those which are to be presented at meetings, but written discussions, only, will be requested for subsequent publication in *Proceedings* and with the paper in the volumes of *Transactions*.

LOCAL ASSOCIATIONS OF MEMBERS OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS

San Francisco Association

The San Francisco Association of Members of the American Society of Civil Engineers holds regular bi-monthly meetings, with banquet, and weekly informal luncheons. The former are held at 6 P. M., at the Palace Hotel, on the third Friday of February, April, June, August, October, and December, the last being the Annual Meeting of the Association.

Informal luncheons are held at 12.15 P. M. every Wednesday, and the place of meeting may be ascertained by communicating with the Secretary of the Association, E. T. Thurston, Jr., M. Am. Soc. C. E., 713 Mechanics' Institute, 57 Post Street.

The by-laws of the Association provide for the extension of hospitality to any member of the Society who may be temporarily in San Francisco, and any such member will be gladly welcomed as a guest.

**Proceedings*, Vol. XXXIII, p. 20 (January, 1907); Vol. XXXVII, p. 28 (January, 1911).

(Abstract of Minutes of Meeting)

August 18th, 1911.—The meeting was called to order; President Derleth in the chair; E. T. Thurston, Jr., Secretary; and present, also, 71 members and guests.

The Secretary announced that the membership of the Association was now 143.

C. H. Snyder, M. Am. Soc. C. E., presented a paper on "Some Recent Developments in Concrete-Steel Building Construction," illustrating his remarks with stereopticon views, and the subject was discussed by Messrs. Boggs, Couchot, Chew, Doerfling, Derleth, Wing, Poss, and Hicks.

Adjourned.

Colorado Association

The meetings of the Colorado Association of Members of the American Society of Civil Engineers are held on the second Saturday of each month, except July and August. The hour and place of meeting are not fixed, but this information will be furnished on application to the Secretary, Gavin N. Houston, M. Am. Soc. C. E., 409 Equitable Building, Denver, Colo. The meetings are usually preceded by an informal dinner. Members of the American Society of Civil Engineers will be welcomed at these meetings.

Weekly luncheons are held on Wednesdays, and until further notice, will take place at The Colorado Traffic Club.

Visiting members are urged to attend the meetings and luncheons.

(Abstract of Minutes of Meeting)

September 9th, 1911.—The meeting was called to order; Vice-President Anderson in the chair; G. N. Houston, Secretary; and present, also, 12 members and 2 guests.

The minutes of the Annual Meeting were read and approved.

A paper on "The Design and Construction of the Alameda Avenue Subway," was presented by V. A. Kauffman, Assoc. M. Am. Soc. C. E.

Adjourned.

**PRIVILEGES OF ENGINEERING SOCIETIES
EXTENDED TO MEMBERS OF THE
AMERICAN SOCIETY OF CIVIL ENGINEERS**

Members of the American Society of Civil Engineers will be welcomed by the following Engineering Societies, both to the use of their Reading Rooms and at all Meetings:

American Institute of Mining Engineers, 29 West Thirty-ninth Street,
New York City.

American Society of Mechanical Engineers, 29 West Thirty-ninth
Street, New York City.

Architekten-Verein zu Berlin, Wilhelmstrasse 92, Berlin W, 66,
Germany.

- Associação dos Engenheiros Cívis Portuguezes**, Lisbon, Portugal.
- Australasian Institute of Mining Engineers**, Melbourne, Victoria, Australia.
- Boston Society of Civil Engineers**, 715 Tremont Temple, Boston, Mass.
- Brooklyn Engineers' Club**, 117 Remsen Street, Brooklyn, N. Y.
- Canadian Society of Civil Engineers**, 413 Dorchester Street, West, Montreal, Que., Canada.
- Civil Engineers' Society of St. Paul**, St. Paul, Minn.
- Cleveland Engineering Society**, Chamber of Commerce Building, Cleveland, Ohio.
- Cleveland Institute of Engineers**, Middlesbrough, England.
- Dansk Ingeniørforening**, Amaliegade 38, Copenhagen, Denmark.
- Engineers' and Architects' Club of Louisville, Ky.**, 303 Norton Building, Fourth and Jefferson Streets, Louisville, Ky.
- Engineers' Club of Baltimore**, Baltimore, Md.
- Engineers' Club of Minneapolis**, 17 South Sixth Street, Minneapolis, Minn.
- Engineers' Club of Philadelphia**, 1317 Spruce Street, Philadelphia, Pa.
- Engineers' Club of St. Louis**, 3817 Olive Street, St. Louis, Mo.
- Engineers' Club of Toronto**, 96 King Street, West, Toronto, Ont., Canada.
- Engineers' Society of Northeastern Pennsylvania**, 302 Board of Trade Building, Scranton, Pa.
- Engineers' Society of Pennsylvania**, 219 Market Street, Harrisburg, Pa.
- Engineers' Society of Western Pennsylvania**, 2511 Oliver Building, Pittsburg, Pa.
- Institute of Marine Engineers**, 58 Romford Road, Stratford, London, E., England.
- Institution of Engineers of the River Plate**, Buenos Aires, Argentine Republic.
- Institute of Naval Architects**, 5 Adelphi Terrace, London, W. C., England.
- Junior Institution of Engineers**, 39 Victoria Street, Westminster, S. W., London, England.
- Koninklijk Instituut van Ingenieurs**, The Hague, The Netherlands.
- Louisiana Engineering Society**, 321 Hibernia Bank Building, New Orleans, La.
- Memphis Engineering Society**, Memphis, Tenn.
- Midland Institute of Mining, Civil and Mechanical Engineers**, Sheffield, England.
- Montana Society of Engineers**, Butte, Montana.

North of England Institute of Mining and Mechanical Engineers,
Newcastle-upon-Tyne, England.

Oesterreichischer Ingenieur- und Architekten-Verein, Eschen-
bachgasse 9, Vienna, Austria.

Pacific Northwest Society of Engineers, 803 Central Building, Seat-
tle, Wash.

Rochester Engineering Society, Rochester, N. Y.

Sachsischer Ingenieur- und Architekten-Verein, Dresden, Germany.

Sociedad Colombiana de Ingenieros, Bogota, Colombia.

Sociedad de Ingenieros del Peru, Lima, Peru.

Societe des Ingenieurs Civils de France, 19 Rue Blanche, Paris,
France.

Society of Engineers, 17 Victoria Street, Westminster, S. W.,
London, England.

Svenska Teknologforeningen, Brunkebergstorg 18, Stockholm,
Sweden.

Tekniske Forening, Vestre Boulevard 18-1, Copenhagen, Denmark.

Western Society of Engineers, 1737 Monadnock Block, Chicago, Ill.

ACCESSIONS TO THE LIBRARY

(From September 13th to October 10th, 1911)

DONATIONS.*

COST KEEPING AND SCIENTIFIC MANAGEMENT.

By Holden A. Evans. Cloth, 9½ x 6 in., illus., 9 + 252 pp. New York and London, McGraw-Hill Book Company, 1911. \$3.00.

While this book is written for jobbing shops and small manufacturing plants, the author states that he hopes it will be found of interest by the officials of large manufacturing establishments and shipbuilding plants. The first chapters are devoted to methods of cost keeping, which are stated to be simple, to require but little clerical work, and easily adapted to meet the requirements of any work. The methods of management described in the second part of the book are intended, it is stated, to aid the manager in his first steps toward scientific management. The Contents are: The Importance of Accurate Costs; The Purposes of a Cost System; The Various Elements of Cost; Distribution of Indirect Costs; Production Order, Shop Order and Cost Section Records; Indirect Charges; Supervision of the Expense Accounts; Methods Followed in the Payment of Labor; Management; Wasted Time Detected by Time Studies; The Principles of Scientific Management Which Can be Followed by a Manager; Methods Which Lead Towards Scientific Management; Machine Shop Methods; Organization of a Smith Shop, a Wood Working Shop, and a Canvas and Flag Shop; Reductions in Cost Due to Scientific Methods; Index.

APPLIED ELECTROCHEMISTRY.

By M. de Kay Thompson. Cloth, 9 x 6 in., illus., 12 + 329 pp. New York, The Macmillan Company, 1911. \$2.10.

The author states that this book is a compilation of notes for a course of lectures on Applied Electrochemistry at the Massachusetts Institute of Technology, in which course he aimed to give an account of the most important electrochemical industries and the principal applications of electrochemistry in the laboratory. It is stated that each subject is discussed both from the theoretical and from the technical point of view, a knowledge of theoretical chemistry being assumed in the theoretical part. There is an appendix which contains the more important constants necessary in electrochemical calculations, and author and subject indices. The Chapter Headings are: Coulometers or Voltameters; Electrochemical Analysis; Electroplating, Electrotyping, and the Production of Metallic Objects; Electrolytic Mining and Refining of Metals in Aqueous Solutions; Electrolytic Reduction and Oxidation; Electrolysis of Alkali Chlorides; The Electrolysis of Water; Primary Cells; The Lead Storage Battery; The Edison Storage Battery; The Electric Furnace; Products of the Resistance and Arc Furnace; The Electrometallurgy of Iron and Steel; The Fixation of Atmospheric Nitrogen; The Production of Ozone.

A TREATISE ON HYDRAULICS.

By Hector J. Hughes and Arthur T. Safford, Members, Am. Soc. C. E. Cloth, 9 x 6 in., illus., 14 + 505 pp. New York, The Macmillan Company, 1911. \$3.75.

This book, it is stated, is intended as a textbook for technical schools and colleges on certain parts of the subject of hydraulics, namely, water pressure, the stability of simple structures subjected to water pressure, the flow of water, the measurement of flow, and the fundamental principles of hydraulic motors. All discussion of the design of hydraulic motors, and other hydraulic machinery, as well as of the design of water power plants, has purposely been omitted as too important to be treated in a work of this size. It has been the authors' aim, it is stated, to present as simply and as directly as possible the recognized methods of solving hydraulic problems; to point out difficulties which may arise in practice and how to meet them; to present empirical coefficients and formulas, pointing out their limitations, and giving experimental values and the limits of experiments; to provide tables of suitable precision and extent, and also diagrams; and to indicate the present state of the practice. In the subject-matter related formulas, coefficients, and the practice of water measurements are said to be connected as closely as possible, and each subdivision is finished as it is taken up, problems for

* Unless otherwise specified, books in this list have been donated by the publishers.

solution being given at the end of each chapter. For formulas of flow in general, Bannoulli's theorem is used as a basis. In the chapters devoted to the flow of water are included methods of measurement, descriptions of the various instruments used for measurement, formulas for flow, etc., rod float measurements, especially current meter measurements, being, it is stated, discussed in detail. Several kinds of logarithmic diagrams of discharge and well-known tables of coefficients are given, and in Table XLIX an extended study of pipe experiments will be found, which includes experiments on old pipes.

AMERICAN SCHOOL BUILDING STANDARDS.

By Wilbur T. Mills. Leather, 7 x 4 in., illus., 324 pp. Columbus, Ohio, Franklin Educational Publishing Company, 1911. (Donated by the Author.)

The author's controlling motive has been, it is stated, to condense and standardize the best present-day practice in the design and construction of public school buildings in the United States, so as to produce, in this book, a compact handbook for ready reference on this subject. In an Appendix, the author gives details of school fittings and equipment, as well as illustrations of sanitary fixtures, correct heating and ventilating apparatus, shower baths, etc. It also contains floor plans and illustrations of the best types of present-day American school buildings. The Chapter Headings are: The Man Who Knows; Selecting an Architect; The School Room; The School Building; Special Rooms; Sanitation; Fireproofing and Panic Proofing; Heating of School Buildings; Ventilation—General Principles; Systems of Ventilation; School Laws of States; Code of Boston School House Commission; Competition Program; Canons of Ethics, American Institute of Architects; Schedule of Fees, American Institute of Architects.

MCGRAW ELECTRIC RAILWAY MANUAL, 1911.

The Red Book of American Street Railway Investments. Edited by Frederic Nicholas. Eighteenth Annual Number. Cloth, 13 x 10 in., illus., 36 + 430 pp. New York, McGraw Publishing Company, 1911. \$5.00.

Prior to 1911, this book was published under the title "American Street Railway Statistics." In a secondary title to this edition, it is stated that the work is a manual of the securities, traffic statistics, earnings, officers, and equipment of street and interurban railways in the United States, Canada, Cuba, and the West Indies. The contents include, for the first time, statistics showing the improved principal returns of operating electric railway companies reporting for 1910, which previously have been published in one of the weekly issues of the *Electric Railway Journal*. The subject-matter is arranged alphabetically by State and city and includes a short history of each road, its capital stock, funded debt, statistics of operation, traffic, and plant. This is followed by the names and addresses of the officers of each company, as well as the addresses of the general offices, power stations, and repair shops. Maps of various cities, showing railway lines, are included. At the end of the book, the names and addresses of the officers of the National and State Railroad Commissions are given, together with lists of the officers of the various street and interurban associations.

THE ELEMENTS OF ELECTRICAL TRANSMISSION.

A Text-Book for Colleges and Technical Schools. By Olin Jerome Ferguson. Cloth, 8½ x 6 in., illus., 7 + 457 pp. New York, The Macmillan Company, 1911. \$3.50.

The author's aim has been to group his subjects so as to provide an elemental study of the broad subject of the generation, transmission, distribution, and utilization of power by electrical processes. Several of the subjects presented may be found elsewhere, but others, such as self-induction and capacity of polyphase circuits as derived from single-phase circuits, line calculations, standing waves, traveling waves, curve calculations, etc., are stated to be new. Several methods of making line calculations, each more or less commonly used, are given in detail in order that contrasts may be made and the simplicity of the series approximation emphasized. In the chapter on Distribution a summary is made of the chief characteristics of the various units which go to make up the load on an electrical system and which determine its distinctive features. The Chapter Headings are: Conductors and Insulation; Insulating Supports; Poles and Towers; Aerial Line Construction; Underground Line Construction; Switchboards and Protective Devices; Circuits; Constants of Circuits; Generation; Transmission; Distribution; Measurements and Contract Rules; Line Phenomena; Index.

PRACTICAL APPLIED ELECTRICITY.

A Book in Plain English for the Practical Man. Theory, Practical Applications, and Examples. By David Penn Moreton. Leather, 7½ x 4½ in., illus., 438 pp. Chicago, The Reilly & Britton Co., 1911. \$2.00.

The text is based, it is stated, to a certain extent, on a series of lectures given by the author in the evening classes in the Department of Electrical Engineering at Armour Institute of Technology. The book is intended primarily to provide a thorough understanding of the fundamental principles of the subject for persons who desire a practical knowledge of the subject, but who are unable to take a complete course in electrical engineering. Numerous examples are given and solved, which illustrate the practical application of laws and principles. Although not intended as a textbook, the author states that it is especially adapted for use in High and Manual Training Schools. The Chapter Headings are: Electrical Circuit and Electrical Units; Calculation of Resistance; Series and Divided Circuits, Measurement of Resistance; Primary Batteries; Magnetism; Electromagnetism; Electromagnetic Induction; Fundamental Theory of the Dynamo; Electrical Instruments and Effects of a Current; Direct-Current Generators; Direct-Current Motors; Armatures for Direct-Current Dynamos; Storage Batteries, Their Application and Management; Distribution and Operation; Diseases of Direct-Current Dynamos; Electric Lighting; Electric Wiring; Alternating-Current Circuit; Alternating-Current Machinery; Resuscitation; Logarithms and Reference Tables; Index.

THE DESIGN AND CONSTRUCTION OF DAMS

Including Masonry, Earth, Rock-Fill, Timber, and Steel Structures, Also the Principal Types of Movable Dams. By Edward Wegmann, M. Am. Soc. C. E. Sixth Edition, Revised and Enlarged. Cloth, 12 x 9½ in., illus., 16 + 529 pp. New York, John Wiley & Sons; London, Chapman & Hall, Limited, 1911. \$6.00. (Donated by the Author and Publishers.)

In this, the sixth edition of this work, the subject-matter has been divided into four parts and an Appendix. In Part I, which treats of the design and construction of masonry dams, the descriptions of important dams of various kinds are stated to have been brought up to date. Many practical details, including some cost data of the New Croton Dam, are given in describing the various dams built for the City of New York. Part II treats of fixed dams other than masonry dams, and Part III is devoted to descriptions of movable dams. Two new chapters have been added to this part, one on Overflow Weirs, which includes a discussion of designs of weirs built on sand and gravel foundations in the United States, in India, and in Egypt, and another on Coffer-dams which gives the various types of such structures and descriptions of coffer-dams actually built. In Part IV descriptions of a number of dams recently built, including the Gatun Dam and the raising of the Assuan Dam, are given. The Appendix contains Specifications for the New Croton Dam; twenty-five tables giving dimensions and strength of various profile types, proofs of the principles discussed, and practical examples of the methods proposed for designing profiles, etc.; discussions of recent partial failures of several dams; descriptions of beaver dams, trembling dams, and tinker dams; cost data of the new Croton Dam; and a bibliography of the various types of dams described by the author. This edition is illustrated by 198 figures in the text and 157 plates. There is also an index of nine pages. The Contents are: Part I, Design and Construction of Masonry Dams: Introduction; Distribution of Pressure in a Wall of Masonry; Theoretical Profiles; Various Applications of Equations (1) to (14); Practical Profiles; Construction; Spanish Dams; French Dams; Dams in Various Parts of Europe; Dams in Algiers; Dams in Egypt; Dams in Asia and Australasia; American Dams; Reinforced Concrete Dams. Part II, Earthen, Rock-Fill, Timber, and Steel Dams: Earthen Dams; Dams Made by the Hydraulic Process; Rock-Fill Dams; Timber Dams; Steel Dams. Part III, Movable Dams, Coffer-dams, and Overflow Weirs: Frame Dams; Shutter Dams; Dams with Bear-trap Gates; Stoney Roller Sluice-gates; Rolling Dams; Butterfly Dams, etc.; Coffer-dams; Overflow Weirs. Part IV, Recent Dams; Appendix.

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Cost-Keeping for Manufacturing Plants. By Sterling H. Bunnell. D. Appleton & Co., New York, 1911.

Electric Trains. By H. M. Hobart. D. Van Nostrand Company, New York, 1910.

The Design and Construction of Ships. By John Harvard Biles. Vol. 2, Stability, Resistance, Propulsion, and Oscillations of Ships. J. B. Lippincott Company, Philadelphia; Charles Griffin and Company, Limited, London, 1911.

Illustrierte Technische Wörterbücher. Von Wilhelm Wagner. Band IX, Werkzeugmaschinen: Metallbearbeitung, Holzbearbeitung. R. Oldenbourg, München und Berlin, 1910.

Metallurgy of Tin. By Henry Lewis. McGraw-Hill Book Company, New York and London, 1911.

Lectures on Illuminating Engineering. Delivered at the Johns Hopkins University, October and November, 1910, Under the Joint Auspices of the University and the Illuminating Engineering Society. Vol. 1-2. The Johns Hopkins Press, Baltimore, 1911.

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RESIGNATIONS

MEMBERS	Date of Resignation.
STONE, EDWARD HERBERT.....	Oct. 3, 1911

DEATHS

- ATKINSON, JOHN BOND. Elected Member September 5th, 1877; died September 2d, 1911.
 EMMONS, CHARLES MORTON. Elected Member April 1st, 1903; died September 14th, 1911.
 MATCHAM, CHARLES ARTHUR. Elected Member June 5th, 1901; died September 22d, 1911.
 SMITH, JAMES. Elected Associate Member November 1st, 1905; Member March 31st, 1908; died February 20th, 1911.
 TEIGEN, THOMAS WILLIAM ROSTAD. Elected Junior September 5th, 1905; Associate Member December 1st, 1908.
 TURNER, WILLIS TUBBS. Elected Associate Member December 7th, 1904; died September 7th, 1911.

**Total Membership of the Society, October 10th, 1911,
 6 210.**

MONTHLY LIST OF RECENT ENGINEERING ARTICLES OF INTEREST

(September 11th to October 9th, 1911)

NOTE.—This list is published for the purpose of placing before the members of the Society, the titles of current engineering articles, which can be referred to in any available engineering library, or can be procured by addressing the publication directly, the address and price being given wherever possible.

LIST OF PUBLICATIONS

In the subjoined list of articles, references are given by the number prefixed to each journal in this list:

- (1) *Journal, Assoc. Eng. Soc.*, 31 Milk St., Boston, Mass., 30c.
- (2) *Proceedings, Engrs. Club of Phila.*, 1317 Spruce St., Philadelphia, Pa.
- (3) *Journal, Franklin Inst.*, Philadelphia, Pa., 50c.
- (4) *Journal, Western Soc. of Engrs.*, Monadnock Blk., Chicago, Ill.
- (5) *Transactions, Can. Soc. C. E.*, Montreal, Que., Canada.
- (6) *School of Mines Quarterly*, Columbia Univ., New York City, 50c.
- (8) *Stevens Institute Indicator*, Stevens Inst., Hoboken, N. J., 50c.
- (9) *Engineering Magazine*, New York City, 25c.
- (10) *Cassier's Magazine*, New York City, 25c.
- (11) *Engineering* (London), W. H. Wiley, New York City, 25c.
- (12) *The Engineer* (London), International News Co., New York City, 35c.
- (13) *Engineering News*, New York City, 15c.
- (14) *The Engineering Record*, New York City, 12c.
- (15) *Railway Age Gazette*, New York City, 15c.
- (16) *Engineering and Mining Journal*, New York City, 15c.
- (17) *Electric Railway Journal*, New York City, 10c.
- (18) *Railway and Engineering Review*, Chicago, Ill., 10c.
- (19) *Scientific American Supplement*, New York City, 10c.
- (20) *Iron Age*, New York City, 10c.
- (21) *Railway Engineer*, London, England, 25c.
- (22) *Iron and Coal Trades Review*, London, England, 25c.
- (23) *Bulletin, American Iron and Steel Assoc.*, Philadelphia, Pa.
- (24) *American Gas Light Journal*, New York City, 10c.
- (25) *American Engineer*, New York City, 20c.
- (26) *Electrical Review*, London, England.
- (27) *Electrical World*, New York City, 10c.
- (28) *Journal, New England Water-Works Assoc.*, Boston, Mass., \$1.
- (29) *Journal, Royal Society of Arts*, London, England, 15c.
- (30) *Annales des Travaux Publics de Belgique*, Brussels, Belgium.
- (31) *Annales de l'Assoc. des Ing. Sortis des Ecoles Spéciales de Gand*, Brussels, Belgium.
- (32) *Mémoires et Compte Rendu des Travaux, Soc. Ing. Civ. de France*, Paris, France.
- (33) *Le Génie Civil*, Paris, France.
- (34) *Portefeuille Economiques des Machines*, Paris, France.
- (35) *Nouvelles Annales de la Construction*, Paris, France.
- (37) *Revue de Mécanique*, Paris, France.
- (38) *Revue Générale des Chemins de Fer et des Tramways*, Paris, France.
- (41) *Modern Machinery*, Chicago, Ill., 10c.
- (42) *Proceedings, Am. Inst. Elec. Engrs.*, New York City, 50c.
- (43) *Annales des Ponts et Chaussées*, Paris, France.
- (44) *Journal, Military Service Institution, Governors Island*, New York Harbor, 50c.
- (45) *Mines and Minerals*, Scranton, Pa., 20c.
- (46) *Scientific American*, New York City, 8c.
- (47) *Mechanical Engineer*, Manchester, England.
- (48) *Zeitschrift, Verein Deutscher Ingenieure*, Berlin, Germany.
- (49) *Zeitschrift für Bauwesen*, Berlin, Germany.
- (50) *Stahl und Eisen*, Düsseldorf, Germany.
- (51) *Deutsche Bauzeitung*, Berlin, Germany.
- (52) *Rigische Industrie-Zeitung*, Riga, Russia.
- (53) *Zeitschrift, Oesterreichischer Ingenieur und Architekten Verein*, Vienna, Austria.
- (54) *Transactions, Am. Soc. C. E.*, New York City, \$4.
- (55) *Transactions, Am. Soc. M. E.*, New York City, \$10.
- (56) *Transactions, Am. Inst. Min. Engrs.*, New York City, \$5.

- (57) *Colliery Guardian*, London, England.
 (58) *Proceedings, Engrs.' Soc. W. Pa.*, 803 Fulton Bldg., Pittsburg, Pa., 50c.
 (59) *Transactions, Mining Inst. of Scotland*, London and Newcastle-upon-Tyne, England.
 (60) *Municipal Engineering*, Indianapolis, Ind., 25c.
 (61) *Proceedings, Western Railway Club*, 225 Dearborn St., Chicago, Ill., 25c.
 (62) *Industrial World*, 59 Ninth St., Pittsburg, Pa.
 (63) *Minutes of Proceedings*, Inst. C. E., London, England.
 (64) *Power*, New York City, 20c.
 (65) *Official Proceedings*, New York Railroad Club, Brooklyn, N. Y., 15c.
 (66) *Journal of Gas Lighting*, London, England, 15c.
 (67) *Cement and Engineering News*, Chicago, Ill., 25c.
 (68) *Mining Journal*, London, England.
 (70) *Engineering Review*, New York City, 10c.
 (71) *Journal, Iron and Steel Inst.*, London, England.
 (71a) *Carnegie Scholarship Memoirs*, Iron and Steel Inst., London, England.
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 (78) *Beton und Eisen*, Vienna, Austria.
 (79) *Forscheraarbeiten*, Vienna, Austria.
 (80) *Tonindustrie Zeitung*, Berlin, Germany.
 (81) *Zeitschrift für Architektur und Ingenieurwesen*, Wiesbaden, Germany.
 (83) *Progressive Age*, New York City, 15c.
 (84) *Le Ciment*, Paris, France.
 (85) *Proceedings Am. Ry. Eng. and M. of W. Assoc.*, Chicago, Ill.
 (86) *Engineering-Contracting*, Chicago, Ill., 10c.
 (87) *Roadmaster and Foreman*, Chicago, Ill., 10c.
 (88) *Bulletin of the International Ry. Congress Assoc.*, Brussels, Belgium.
 (89) *Proceedings, Am. Soc. for Testing Materials*, Philadelphia, Pa.
 (90) *Transactions, Inst. of Naval Archts.*, London, England.
 (91) *Transactions, Soc. Naval Archts. and Marine Engrs.*, New York City.
 (92) *Bulletin, Soc. d'Encouragement pour l'Industrie Nationale*, Paris, France.
 (93) *Revue de Métallurgie*, Paris, France, 4 fr. 50.
 (94) *The Boiler Maker*, New York City, 10c.
 (95) *International Marine Engineering*, New York City, 20c.
 (96) *Canadian Engineer*, Toronto, Ont., Canada, 15c.
 (97) *Turbine*, Berlin, Germany, 1 Mark.
 (98) *Journal, Engrs. Soc. Pa.*, 219 Market St., Harrisburg, Pa., 30c.
 (99) *Proceedings, Am. Soc. of Municipal Improvements*, New York City, \$1.50.
 (100) *Professional Memoirs, Corps of Engrs., U. S. A.*, Washington, D. C., \$1.
 (101) *Metal Worker*, New York City, 10c.
 (102) *Organ für die Fortschritte des Eisenbahnwesens*, Wiesbaden, Germany.
 (103) *Mining and Scientific Press*, San Francisco, Cal., 10c.
 (104) *The Surveyor and Municipal and County Engineer*, London, England, 6d.
 (105) *Metallurgical and Chemical Engineering*, New York City, 25c.
 (106) *Transactions, Inst. of Mining Engrs.*, London, England, 6 shillings.
 (107) *Schweizerische Bauzeitung*, Zurich, Switzerland.
 (108) *Southern Machinery*, Atlanta, Ga., 10c.

LIST OF ARTICLES.

Bridges.

- The Reconstruction and Widening of Arpley Bridge, Warrington.* William Dawson. (63) Vol. 184.
 Reconstruction of the Road-Bridge over the River Tame at Lea Marston.* Victor Michael Barrington-Ward. (63) Vol. 184.
 Oakland Avenue Reinforced-Concrete Bridge in Piedmont, California.* W. P. Day, Assoc. M. Am. Soc. C. E. (13) Sept. 14.
 The New Intermediate Shore Towers of the Williamsburg Bridge.* (14) Sept. 16.
 Concrete Bridge in Philippines.* Jay A. Rossler. (From *The Contractor*.) (96) Sept. 28.
 The Sitter Viaduct. (46) Sept. 30.
 The Pratt Street Bridge, Baltimore.* (14) Sept. 30.
 Secondary Stresses.* F. C. Kunz, M. Am. Soc. C. E. (13) Oct. 5.
 The Columbia River Bridge of the North Coast Railroad Co. (now the Oregon-Washington R. R. & N. Co.)* F. L. Pittman, M. Am. Soc. C. E. (13) Oct. 5.
 Rapid Bridge Work on the Boston & Albany.* W. F. Steffens. (15) Oct. 6.

*Illustrated.



Bridges—(Continued).

- Reinforcing Williamsburg Bridge Trusses.* (14) Oct. 7.
 How Pedestrians have been Enabled to Cross the Grand Central Terminal Yard during its Reconstruction; The Details of a Movable Footbridge with Suspended Floor.* (14) Oct. 7.
 Port de Cette, Pont Tournant de la Gare à Manœuvre Electrique.* Guibal. (43) July.
 Notice sur la Construction du Pont de Montanges au lieu dit Moulin des Pierres.* Ed. Picard. (43) July.
 Pont en Béton Armé, au Plan du Var; Chemin de Fer Electrique de la Vallée de la Vésuvie (Alpes-Maritimes).* James Boudet. (35) Serial beginning Sept.
 Note sur l'Exécution d'une Passerelle en Béton de Ciment Fretté et Armé au-dessus des Voles de la Gare de Périgueux.* Millon d'Ainval. (38) Sept.
 Le Pont de Montanges au lieu dit "Moulin des Pierres" sur la Valserine (Ain).* J. Dor. (33) Sept. 16.
 Der Neubau der Röntgenbrück in Charlottenburg.* Zangemeister. (49) Pt. 7.
 Was kennt man im Auslande von dem Brückenbau in Russland? (52) Aug. 31.
 Unterführung aus Stampfbeton.* Kupfer. (78) Sept. 13.
 Der Ideen-Wettbewerb zur Erlangung von Entwürfen für den Neubau der Kaiserbrücke über die Weser in Bremen.* Th. Landsberg. (48) Serial beginning Sept. 23.

Electrical.

- An Improved Absorption Dynamometer.* C. M. Garland. (55) Vol. 32.
 Economy of the Electric Drive in the Machine Shop. A. L. De Leeuw. (55) Vol. 32.
 Economical Features of Electric Motor Applications.* Charles Robbins. (55) Vol. 32.
 A Direct-Reading Instrument for Submarine-Cable and other Calculations. Rollo Appleyard. (63) Vol. 184.
 Chemical Action in the Windings of High-Voltage Machines. A. P. M. Fleming and R. Johnson. (77) Aug.
 The Non-Salient Pole Turbo-Alternator and its Characteristics.* Stanley P. Smith. (77) Aug.
 Battery Economics and Battery Discharge Arrangements.* A. M. Taylor. (77) Aug.
 Practical Aspects of Printing Telegraphy.* Donald Murray. (77) Aug.
 The Laying and Maintenance of Transmission Cables.* C. Vernier. (77) Aug.
 Electricity in Ice Plants.* Aug. C. Smith. (4) Sept.
 Automatic Track Circuits.* (26) Sept. 8.
 Recent Developments in Radio-Telegraphy.* G. W. O. Howe. (Paper read before the British Assoc.) (73) Sept. 8; (11) Sept. 8.
 A New Two- To Three-Phase Transformer.* M. Vidmar. (Abstract from *Elektrotechnik und Maschinenbau*.) (73) Sept. 8.
 Electrical Steering.* B. Parker Haigh, Assoc. M. Inst. C. E. (Paper read before the British Assoc.) (11) Sept. 8; (26) Sept. 22; (73) Sept. 15.
 Recent Improvements in Single-Phase Motors.* W. A. Layman. (Abstract of paper read before the National Elec. Light Assoc.) (47) Sept. 8.
 The Barbour Homopolar Dynamo.* (11) Sept. 8.
 New High-Tension Transmission System in Connecticut Valley.* (27) Sept. 9.
 Hydroelectric Station at Clinton, Mass.* (27) Sept. 9.
 A Steam-Plant Transmission System for Harrison County, Ia., and Washington County, Neb.* W. A. Trussell. (27) Sept. 9.
 Variation of Resistance with Temperature Shown by Nernst Glower.* Albert A. Somerville. (27) Sept. 9.
 Appraisal of the Chicago Telephone Company and Determination of Fair Rates of Charge. William J. Hagenah. (86) Serial beginning Sept. 13.
 Stroboscopic Methods of Measuring the Slip in Induction Motors.* A. Bruckmann. (Abstract from *Elektrotechnische Zeitschrift*.) (73) Sept. 15.
 How Electricity is Aiding the Chemist.* (46) Sept. 16.
 Overhead-Line Construction. (Paper read by a Committee before the Pennsylvania Elec. Assoc.) (27) Sept. 16.
 Georgia's Greatest Power Development.* (27) Sept. 16.
 Lightning Arrester Installation of Pittsburgh Railway System.* Terrell Croft. (27) Sept. 16.
 Electrical Development in China.* L. R. Freeman. (27) Sept. 16.
 The Electric Weigher. E. H. Messiter. (16) Sept. 16.
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 The Single-Phase Repulsion Motor.* Thomas F. Wall. (Paper read before the British Assoc.) (73) Serial beginning Sept. 22.
 Experiments on Spark Gaps with Alternating Current.* W. Weicker. (Abstract from *Elektrotechnische Zeitschrift*.) (73) Sept. 22.

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- Short Cuts in Transmission Line Economics. Alfred Still. (27) Sept. 23.
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 Power Station and Transmission Line of the Hoosac Tunnel.* (17) Sept. 16; (27) Sept. 23.
 Loaded Telephone Cables.* J. A. Fleming. (From *Knowledge*.) (19) Sept. 23.
 A Theory of Commutation and its Application to Interpole Machines.* B. G. Lamme. (42) Oct.
 Industrial Electric-Power Distribution. H. S. Knowlton. (9) Oct.
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 Equipment and Instructions for Testing Electric Motors in Industrial Plants.* Samuel P. Goodale. (27) Oct. 7.
 Cost and Efficiency of A. C. Versus D. C. Motors for Steel Mill Auxiliaries. B. R. Shover and Edward J. Cheney. (Paper read before the Assoc. of Iron and Steel Elec. Engrs.) (62) Oct. 9.

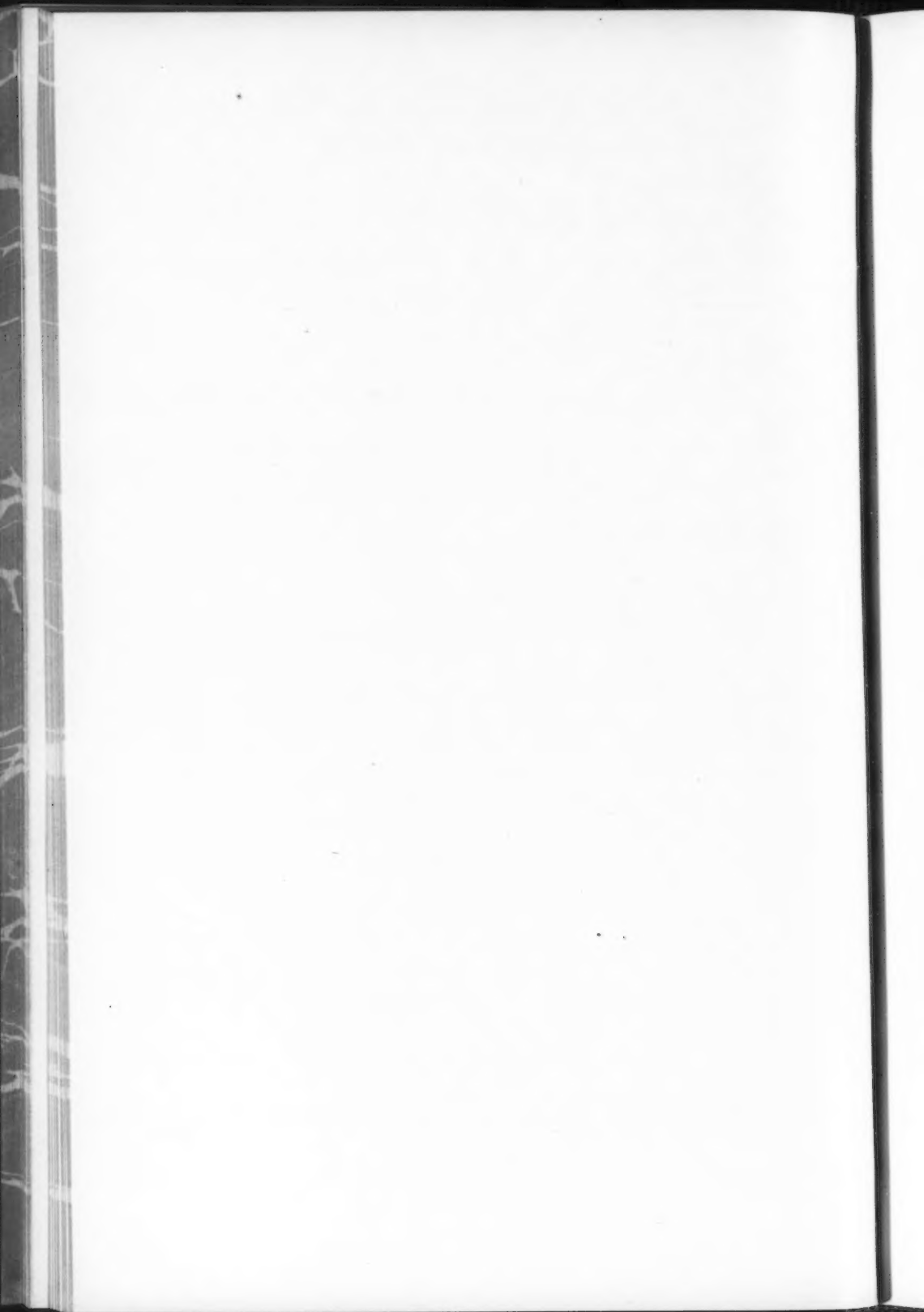
Marine.

- Electric Drives for Screw Propellers.* H. A. Mavor. (Paper read before the British Assoc.) (73) Sept. 8; (26) Sept. 22.
 Some Late Types of Dredges Built in Clyde Yards for Foreign Service. George Thow. (13) Sept. 14.
 The Official Progress Report on Removal of Wreck of Battleship *Maine*. (13) Sept. 14.
 Some Scottish Marine Oil Engines.* (12) Sept. 22.
 Steel Barge *Mastodon*; Morgan's Louisiana & Texas.* (15) Sept. 29.
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 Progress of the Diesel Engine in Maritime Work.* J. Rendell Willson. (95) Oct.
 Progress of Dissolved Acetylene for Marine Signals. (95) Oct.
 The Sperry Gyro-Compass.* (95) Oct.
 For Heavier Armor. Sidney G. Koon. (95) Oct.
 Le Moteur Diesel à Bord des Navires de Haute Mer.* A. Bochet. (32) July.
 Le Yacht à Moteur à Gas Pauvre *Progress*.* (33) Sept. 9.

Mechanical.

- Ball-Bearing Lineshaft Hangers.* Henry Hess. (55) Vol. 32.
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 Tooth Gearing.* J. D. Steven. (55) Vol. 32.
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 High-Speed Tools and Machines to Fit Them.* H. I. Brackenbury. (55) Vol. 32.
 Test of a 15 000-K. W. Steam-Engine-Turbine Unit.* H. G. Stott and R. J. S. Pigott. (55) Vol. 32.
 Operating Experiences with a Blast Furnace Gas Power Plant.* Heinrich J. Freyn. (55) Vol. 32.
 The Mechanical Engineer and the Textile Industry.* H. L. Gantt. (55) Vol. 32.
 Operating Conditions of Passenger Elevators.* Reginald P. Bolton. (55) Vol. 32.
 The Field for Grinding.* C. H. Norton. (55) Vol. 32.
 Precision Grinding.* W. A. Viall. (55) Vol. 32.
 Modern Grinding Methods.* B. M. W. Hanson. (55) Vol. 32.
 First Large Gas-Engine Installation in American Steel Works.* E. P. Coleman. (55) Vol. 32.
 Topical Discussion on the Problem of Smoke Abatement.* D. T. Randall and E. G. Bailey. (55) Vol. 32.
 The Transmission of Heat in Surface Condensation.* George A. Orrok. (55) Vol. 32.
 Combustion and Boiler Efficiency.* Edw. A. Vehling. (55) Vol. 32.
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 American Practice in Cleaning Blast Furnace Gas.* Samuel K. Varnes. (98) Aug.
 The Use of the Permanent Mold.* Edgar A. Custer. (Paper read before the Am. Foundrymen's Assoc.) (108) Serial beginning Sept.
 Engine Testing Brakes.* W. D. Wansbrough. (10) Sept.
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- The Utilization of the Wastes of a Blast Furnace. E. M. Hagar. (67) Sept.
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 Smoke Abatement: The Possibility of Fixing a New Standard of Smoke Emission from Factory Chimneys. J. S. Owens. (Abstract of paper read before the British Assoc.) (29) Sept. 8; (47) Sept. 15; (11) Sept. 15; (73) Sept. 22.
 Principles of Flight. Algernon E. Berriman. (Paper read before the British Assoc.) (11) Sept. 8.
 A Triple-Acting Safety Valve for Boilers.* (62) Sept. 11.
 The Installation of Glover-West Vertical Retorts and the Extensions at the Helensburgh Corporation Gas-Works.* W. Blair. (Paper read before the North British Gas Assoc. of Gas Managers.) (66) Sept. 12.
 Developments in Prime Movers.* A. G. Christie. (64) Sept. 12.
 A High Speed Cast Iron Flywheel.* W. Trinks. (64) Sept. 12.
 Suction Gas-Engines and Producers.* W. A. Tookey. (Abstract of a paper read before the British Assoc.) (66) Sept. 12; (47) Sept. 15; (73) Sept. 15; (12) Sept. 15; (11) Sept. 8.
 The Diesel Oil-Engine. C. Day. (Abstract of a paper read before the British Assoc.) (66) Sept. 12; (47) Sept. 22; (12) Sept. 15; (11) Sept. 15; (73) Sept. 22.
 The Underground Pneumatic Tube System for the Transportation of U. S. Mail.* B. C. Batcheller. (Abstract of paper read before the Mass. Inst. of Tech.) (13) Sept. 14.
 New High-Speed Cableways on the Panama Canal.* (13) Sept. 14.
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 A New Gas-Holder.* (96) Sept. 14.
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 The Design of Aluminum Castings. H. W. Gillett. (Abstract of paper read before the Soc. of Automobile Engrs.) (47) Sept. 15.
 Caloric Versus Candle-Power Standards. Wilfred Philpot. (Paper read before the Canadian Gas Assoc.) (83) Sept. 15.
 The Balance of Rotating Cylinder Engines.* H. Grinstead. (11) Sept. 15.
 Over-Type Superheated Steam Engines.* W. J. Marshall. (Paper read before the British Assoc.) (11) Sept. 15; (73) Sept. 22.
 The Manufacture of Patent Fuel. (57) Serial beginning Sept. 15.
 Mechanical Service for the Furnace in the Modern Industrial Plant.* (19) Sept. 16.
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 Altitude of the Air Question in Relation to Gas Manufacture, Purification, and Reduction of Quality. William Key. (Paper read before the North British Gas Mgrs. Assoc.) (66) Sept. 19.
 Bearing Pressures in Gas Engines.* G. W. Lewis and A. G. Kessler. (64) Sept. 19.
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 Heat-Insulating Materials: The Relation Between Surface Temperature and Efficiency.* Chas. R. Darling. (11) Sept. 22.
 New Forging Press at Terni, Italy.* (12) Sept. 22.
 Long Addendum Gears.* E. W. Weaver. (Abstract of paper read before the Soc. of Automobile Engrs.) (47) Sept. 22.
 Treatment of Coking Coal in Relation to the Quality and Appearance of the Coke.* A. Thau. (22) Sept. 22.
 The Four-Cycle Gas-Power Blast Engine for Steel Works.* Otto Hahn. (22) Sept. 22.
 Amisler Suction Gas Producer Being Used for Power and Fuel.* (62) Sept. 25.
 Naphthalene in Coal Gas. (Papers from *Journal für Gasbeleuchtung*.) (66) Sept. 26.
 The Steam Turbine in Germany.* F. E. Junge. (64) Serial beginning Sept. 26.
 Using Compressed Air in Steam Hoists. Frank Richards. (64) Sept. 26.
 A Steam-Shovel Attachment for Derricks.* (13) Sept. 28.
 An Aerial Cableway for Handling Coal from Mine to Colliery.* B. Benthous, M. I. M. E. (13) Sept. 28.
 A Portable Oil-Burning Reheater for Compressed Air.* (13) Sept. 28.
 Portable Conveyors and Elevators for Handling Freight.* (13) Sept. 28.
 The Manufacturing Plant for the Havana Sewerage System. Charles Bennet Goodwin. (14) Sept. 30.
 The Present Status of the Rubber Industry.* (19) Sept. 30.
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- Power From Sunshine.* Frank Shuman. (46) Sept. 30; (13) Sept. 21; (96) Oct. 5; (20) Sept. 28; (101) Oct. 6; (14) Sept. 23.
- Freight Transferring Machinery at Antwerp.* McL. Harding. (95) Oct.
- Notes on Boiler Covering.* A. P. Strohmeier. (Paper read before the Inst. of Marine Engrs.) (94) Oct.
- The Gas-Steam Boiler.* John Jashky. (94) Oct.
- A Proposed Basis for Rating House-Heating Boilers and Furnaces.* Frank L. Busey. (70) Oct.
- Suspended Electric Railways for Industrial Service.* J. F. Gairns. (10) Oct.
- Power Transmission in Gas Engines.* Horace Allen. (10) Oct.
- Gas Power from Low Grade Fuels. R. H. Fernald. (10) Oct.
- Modern Hauling Problems. Rollin W. Hutchinson. (10) Oct.
- The Internal-Combustion Engine in Modern Practice.* Robert L. Streeter. (9) Oct.
- On "Blaugas," A New Gas for Lighting Isolated Country Houses and Other Buildings. Wm. Paul Gerhard. (70) Oct.
- Waste-Heat Coke Ovens.* (45) Oct. 1.
- Vallejo Brick & Tile Co.* (76) Oct. 1.
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- The Function of Tar in the Condensation of Coal Gas. Alfred H. White. (Paper read before the Michigan Gas Assoc.) (83) Oct. 2; (24) Sept. 25.
- Recent Small Gas Lighting Units.* F. H. Gilpin. (Paper read before the Illuminating Eng. Soc.) (24) Oct. 2.
- Filament Ignition of Gas.* Howard Lyon. (Paper read before the Michigan Gas Assoc.) (83) Oct. 2.
- Producing Power from the Sun's Rays.* A. D. Blake. (64) Oct. 3.
- Sheffield Farms Companies' New Plant.* Warren O. Rogers. (64) Oct. 3.
- Cost of Crushing Rock at the Pocolma Quarry of the Los Angeles County Highway Commission.* W. A. Gillette. (86) Oct. 4.
- Ore Loading at El Cuero Mines.* Jennings S. Cox. (20) Oct. 5.
- The Development of Steam Turbine Designs. Edwin D. Dreyfus. (Abstract of paper read before the Indiana Elec. Light Assoc.) (13) Oct. 5; (64) Oct. 3.
- The Diesel Engine.* Hayner H. Gordon. (46) Oct. 7.
- The Application of the Taylor System of Shop Management to Gas Works.* B. M. Ferguson. (Paper read before the Michigan Gas Assoc.) (24) Oct. 9.
- Directions for the Recovery, Concentration and Testing of Ammonia.* James A. Brown. (Paper read before the Michigan Gas Assoc.) (24) Oct. 9.
- New Process for Blast-Chilled Sheet and Tin Plate Rolls.* (62) Oct. 9.
- La Fabrication Industrielle de l'Hydrogene pour le Gonflement des Ballons Militaires.* George F. Jaubert. (32) July.
- Installations de Dépoussierage pour Fours Rotatifs.* (84) Aug.
- Technique et Pratique du Filetage.* J. Androuin. (37) Aug. 31.
- Fonderie Générale et Acierie, Société Française de Constructions Mécaniques (Anciens Etablissements Call).* Ch. Bouvard. (93) Sept.
- Calcul des Câbles Métalliques pour Appareils de Levage. A. Nachtergal. (34) Sept.
- Nouveaux Appareils de Distillation du Gaz de Houille.* (34) Sept.
- Machine Demi-Fixe, Compound et à Surchauffe des Anciens Etablissements Weyher et Richemond.* (33) Sept. 2.
- Le Stabilisateur Automatique Dautre pour Aéroplane.* (33) Sept. 16.
- Der 100 pferdige Schiffsmotor der Neuen Automobil-Gesellschaft in Oberschöneweide bei Berlin.* Dierfeld. (48) Sept. 2.
- Die untertägige Gross-Selbbahnanlage am Tegetthoffschacht im nordwestböhmisches Kohlenrevier.* A. Grögler. (48) Sept. 2.
- Die Eigenschaften des Wasserdampfes nach den neuesten Versuchen.* W. Schule. (48) Serial beginning Sept. 9.
- Motorlastzug der Norddeutschen Automobil- und Motoren- A.-G. in Bremen-Hasstedt.* B. Bucholz. (48) Sept. 9.
- Durch Druckluft betriebene Werkzeuge und Apparate.* Hubert Hermanns. (53) Serial beginning Sept. 15.
- Graphische Darstellung der Vorgänge in einer Trockenanlage.* Karl Reyscher. (48) Sept. 16.
- Einige neuzeitliche Verladeanlagen für Kohlen, Getriebe und Stückgut in Seehäfen gebaut von der Mannheimer Maschinenfabrik Mohr & Federhaff in Mannheim.* B. Garlepp. (48) Sept. 16.
- Erz- und Gichtstaubbrikettierung nach Weiss.* Ernst Holzhüter. (50) Sept. 21.
- Neuerungen an fahrbaren Rollen- und Hebetischen.* (50) Sept. 21.
- Die Arbeitsmaschinen für die Textilindustrie auf den Ausstellungen zu Turin und Roubaix.* G. Rohn. (48) Serial beginning Sept. 23.
- Volumenvergrößerung und Schwindung des Gusseisens.* A. Messerschmitt. (50) Sept. 28.

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Metallurgical.

- Mechanicalising Analysis as an Aid to Accuracy and Speed for Commercial Purposes.* C. H. Ridsdale and N. D. Ridsdale. (71) Vol. 83.
- The Growth of Cast Irons After Repeated Heatings.* H. C. H. Carpenter. (71) Vol. 83.
- The Chemical and Mechanical Relations of Iron, Chromium, and Carbon.* J. O. Arnold and A. A. Read. (71) Vol. 83.
- Some Properties of Heat-Treated Three Per Cent. Nickel Steels.* Andrew McWilliam and Ernest J. Barnes. (71) Vol. 83.
- Influence of 0.2 Per Cent. Vanadium on Steels of Varying Carbon Content.* Andrew McWilliam and Ernest J. Barnes. (71) Vol. 83.
- The Influence of Vanadium Upon the Physical Properties of Cast Iron.* W. H. Hatfield. (71) Vol. 83.
- Note on a Process for the Desiccation of Air by Calcium Chloride. (For blast furnaces).* Felix A. Daubiné and Eugene V. Roy. (71) Vol. 83.
- Notes on the Welding Up of Blow Holes and Cavities in Steel Ingots.* J. E. Stead. (71) Vol. 83.
- Some Studies of Welds.* Edward F. Law, William H. Merrett and W. Pollard Digby. (71) Vol. 83.
- The Magnetic Properties of Some Nickel Steels, with Some Notes on the Structures of Meteoric Iron.* E. Colver-Glauret and S. Hilpert. (71) Vol. 83.
- The Volumetric Estimation of Sulphur in Iron and Steel. T. Gifford Elliot. (71) Vol. 83.
- Iron-Silicon-Carbon Alloys.* W. Gontermann. (71) Vol. 83.
- Specifications for Materials, Aluminum and Copper, Alloys Division of the Standards Committee of the Society of Automobile Engineers, June, 1911. (108) Sept.
- Vanadium in Iron and Steel Castings. G. S. Norris. (Paper read before the Am. Foundrymen's Assoc.) (47) Sept. 8.
- Carbon Control in Cast Iron. R. Buchanan. (Paper read before the British Foundrymen's Assoc.) (47) Sept. 15.
- Historical Notes on the Air-Lift Agitator.* J. W. Swaren. (103) Sept. 30.
- Calculations in Ore Concentrations. Rudolph Gahl. (From *Western Chemist.*) (45) Oct.
- Notes on Chilian Mills in Russia.* H. C. Bayldon. (45) Oct.
- Method of Smelting with Oil. (45) Oct.
- Titanium Steel.* J. F. Springer. (10) Oct.
- Magnetic Ore Dressing.* R. Cyril V. Whitfield. (10) Oct.
- The Trolhättan Electric Smeltery.* J. B. Van Brussel. (16) Sept. 30; (105) Oct.
- The Preparation and Properties of Metallic Cerium. Alcan Hirsch. (Paper read before the Am. Electrochemical Soc.) (105) Oct.
- Electric Furnace Treatment of Nickel Ore and the Development of a Commercial Process.* Walter Leonard Morrison. (Paper read before the Am. Electrochemical Soc.) (105) Oct.
- Titanium in Iron and Steel. Charles V. Slocum. (Paper read before the Am. Electrochemical Soc.) (105) Oct.
- Production of Molybdenum Steel in the Electric Furnace.* E. T. Dittus and R. G. Bowman. (Paper read before the Am. Electrochemical Soc.) (105) Oct.
- Design of a 30-Ton Electric Induction Furnace.* Albert Hlorth. (Paper read before the Am. Electrochemical Soc.) (105) Oct.
- The Determination of Gold and Silver in Copper. Edward F. Kern and Albert A. Helmrod. (105) Oct.
- Electric Iron Smelting in Sweden.* Thomas Duncan Robertson. (Paper read before the Am. Electrochemical Soc.) (105) Oct.
- Cyaniding at Guazapares.* P. E. Van Saun. (16) Oct. 7.
- Slime Thickening at El Tigre.* D. L. H. Forbes. (16) Oct. 7.
- Sur la Cristallisation du Fer Alpha.* M. Ziegler. (93) Sept.
- Sur l'Emploi du Carborundum dans la Fabrication des Aciers Spéciaux.* L. Baraduc-Muller. (93) Sept.
- Notes sur le Recuit des Métaux.* M. Matweeff. (93) Sept.
- Sur les Allages Aluminium-Zinc.* A. Portevin. (93) Sept.
- Das Schwinden des Gusseisens.* Erich Rosenberg. (50) Aug. 31.
- Ueber das Umschmelzen von Ferromangan im elektrischen Ofen und das Arbeiten mit flüssigem Ferromangan.* Felix Schroeder. (50) Sept. 7.
- Elektrische Schmelzöfen der Stahlindustrie.* (107) Sept. 9.

Mining.

- An Experiment on the Effects of Reversing a Main Air-Current.* James Bain and J. S. Haldane. (106) Vol. 41, Pt. 5.
- Notes on Contrivances Designed to Prevent Overwinding, with Some Instances of Their Failure.* W. H. Pickering and Granville Poole. (106) Vol. 41, Pt. 5.
- The Otto-Hilgenstock Direct-Recovery Process and its Application.* Ernest Bury. (106) Vol. 41, Pt. 5.

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- Experimental Coal Mine of United States Bureau of Mines.* George S. Rice. (4) Sept.
- Coal-Dust Explosions. George S. Rice. (Abstract of *Circular*, U. S. Bur. of Mines.) (22) Sept. 8.
- Ignition of Firedamp by the Incandescent Filaments of Electric Lamps. E. Lemaire. (*Annales des Mines de Belgique*.) (22) Sept. 8.
- Better Prospecting at Joplin. Otto Ruhl. (103) Sept. 9.
- Appraisal of Copper Mines. J. R. Finlay. (Abstract from Michigan Tax Commrs. Report.) (103) Sept. 9.
- Use and Care of Rescue Breathing Apparatus.* James W. Paul. (83) Sept. 15.
- The Wabana Iron Mines of the Nova Scotia Steel and Coal Company, Limited.* Thomas Cantley. (From *Journal of the Canadian Min. Inst.*) (22) Sept. 15.
- Estimating and Valuing the Future of Mines.* Morton Webber. (103) Sept. 16.
- A Proposed Method of Timbering.* A. J. Moore. (Paper read before the Australasian Inst. of Min. Engrs.) (16) Sept. 16.
- Low Cost of Mining on Mother Lode.* William G. Devereux. (16) Sept. 16.
- The Electrification of a Gold Reduction Mill.* (27) Sept. 16.
- A Report on the Protection of the City of Scranton from Surface Caving over Mine Excavations.* (13) Sept. 21.
- Developments at Carmock and Devon Collieries.* (22) Sept. 22.
- Filling Mine Stopes with Sand. William H. Storms. (16) Sept. 23.
- Things to Know about Permissible Explosives. Clarence Hall. (96) Sept. 28.
- Dredge Building in California.* Lewis H. Eddy. (16) Sept. 30.
- Ore Mine Inspection in Missouri. Lucius L. Wittich. (45) Oct.
- Universal Mine Plant and Shafts.* A. F. Allard. (45) Oct.
- The Puritan Mine: Some Interesting Features in the Equipment of One of the Newer Colorado Coal Mines.* Joseph Watson. (45) Oct.
- Gold Milling in California. William H. Storms. (105) Oct.
- Coal Mining in Michigan.* (45) Oct.
- Underground Safety Appliances.* Stephen L. Goodale. (45) Oct.
- Surveying and Sampling Drill Holes.* E. E. White. (Paper read before the Lake Superior Min. Inst.) (45) Oct.; (16) Sept. 23; (86) Oct. 4; (16) Oct. 7.
- The Problems of the Nueva Luz Shaft.* Carl Heinrich. (16) Oct. 7.
- Note sur la Récupération de l'Or dans le Dragage des Alluvions Aurifères en Guyane Française.* L. C. de la Marlière. (32) July.
- Les Mines de Fer dans l'Anjou et la Bretagne, l'Exploitation Intensive des Concessions des Environs de Segré (Maine-et-Loire).* S. Brull. (33) Serial beginning Sept. 2.

Miscellaneous.

- Clearing Logged-Off Land by the Aid of a Donkey Engine. W. H. Lawrence. (From *Bulletin*, Washington State Agri. College.) (86) Sept. 13.
- The Requirements and Theory of the Advertisement or Notice to Bidders on Contracts for Public Works. Jerome Cochran. (13) Sept. 14.
- Methods and Cost of Clearing Logged-Off Lands by the Char-Pit Method. H. W. Sparks. (From *Bulletin*, Washington State Agri. College.) (86) Sept. 20.
- Variations in the Weather; A Review of Mr. W. Marriott's Tables and Diagrams. Reginald Ryves, Assoc. M. Inst. C. E. (104) Sept. 22.
- Some Experiments in Clearing Logged-Off Land with a Stump Burner. W. H. Lawrence. (*Bulletin*, Washington State Agri. College.) (86) Sept. 27.
- Effect of the Sun's Heat on Bed Rock at a Dam Site. (14) Sept. 30.
- Cost of Alkali Chloride Electrolysis. Victor Engelhardt. (From *Chemiker Zeitung*.) (105) Oct.
- Photometry of Large Light Sources.* G. H. Stickney and S. L. E. Rose. (Paper read before the Illuminating Eng. Soc.) (24) Oct. 2.
- Remarques Complémentaires sur la Constitution Intérieure du Globe Terrestre.* M. J. Rey. (32) July.

Municipal.

- Road Improvement and Traffic Requirements.* Reginald Ryves, Assoc. M. Inst. C. E. (Paper read before the Irish Road Congress.) (104) Sept. 8.
- Town Planning of a Modern City from an Engineer's Point of View. Charles Brownridge, M. Inst. C. E. (Paper read before the Royal Sanitary Inst. Congress.) (104) Serial beginning Sept. 8.
- Proposed Standard Specifications for Street Lighting. (66) Sept. 12.
- Cresotated Wood Block Paving in Chicago. Harry G. Davis. (86) Sept. 13.
- Permanent Culverts. W. S. Gearhart. (Paper read before the Am. Road Builders Assoc.) (96) Sept. 14.
- Brick Paving in Ohio.* (76) Sept. 15.
- A Concrete Pavement with Thin Wearing Surface of Bitumen.* E. W. Groves. (86) Sept. 20.

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- Standard Culverts of the Los Angeles County Highway Commission.* (13) Sept. 21.
 Standardised Street Widths. J. Nolan. (Abstract of paper read before the National Conference on City Planning.) (104) Sept. 22; (96) Oct. 5.
 Test of a Concrete Sidewalk Slab.* (14) Sept. 23.
 Causes of Some Failures of Creosoted Wood Block Paving in Chicago.* C. K. Mohler. (13) Sept. 28.
 Street Paving in American Cities. Samuel Whinery, M. Am. Soc. C. E. (14) Sept. 30.
 Contraction and Expansion of Brick Pavements. Will P. Blair. (Paper read before the Am. Soc. of Mun. Improvements.) (60) Oct.
 Notes and Queries on Grouted and Sand-Filled Brick Pavements. Maury Nicholson. (Paper read before the Am. Soc. of Mun. Improvements.) (60) Oct.
 Howard Standard Tests for Asphalt Cements for Sheet Asphalt Pavements. J. W. Howard. (Paper read before the Am. Soc. of Mun. Improvements.) (86) Oct. 4.
 Importance of Street Paving in City Life. Ira O. Baker. (Paper read before the International Mun. Congress.) (96) Oct. 5.

Railroads.

- Finishing Staybolts and Straight and Taper Bolts for Locomotives.* C. K. Lassiter. (55) Vol. 32.
 Electrification of Suburban Railways.* F. W. Carter. (55) Vol. 32.
 The Cost of Electrically-Propelled Suburban Trains. H. M. Hobart. (55) Vol. 32.
 Economics of Railway Electrification.* Wm. Bancroft Potter. (55) Vol. 32.
 The Electrification of Trunk Lines.* L. R. Pomeroy. (55) Vol. 32.
 The Electrification of Railways. George Westinghouse. (55) Vol. 32.
 English Running-Shed Practice.* Cecil W. Paget. (55) Vol. 32.
 Handling Locomotives at Terminals. Frederic M. Whyte. (55) Vol. 32.
 Handling Locomotives to Secure Continuous Operation.* F. H. Clark. (55) Vol. 32.
 American Locomotive Terminals.* William Forsyth. (55) Vol. 32.
 Handling Engines. H. H. Vaughan. (55) Vol. 32.
 The Prospect of State Ownership of Railways in England and in the United States. W. M. Acworth. (88) Aug.
 The Controlling Cabin at Hamburg Chief Station. Kühl. (88) Aug.
 Relation of Track Fastenings to Creosoted Ties. Hermann von Schrenk. (Paper read before the St. Louis Ry. Club.) (87) Sept.
 The Evolution of the Geared Locomotive.* William Fletcher. (10) Sept.
 Track Elevation in Chicago.* (87) Sept.
 Sand Sidings.* Köpcke. (87) Sept.
 Hungarian Locomotives and Their Performances.* (21) Serial beginning Sept.
 Reinforced Concrete in Railway Work.* (21) Serial beginning Sept.
 Substitutes for Wood Trunking for Railway Signal Conduits. W. K. Sparrow. (Abstract from paper read before the Ry. Signal Assoc.) (87) Sept.
 The Origin and Production of "Corrugation" of Tramway Rails.* W. Worby Beaumont. (Paper read before the British Assoc.) (73) Sept. 8; (26) Sept. 15; (12) Sept. 8; (11) Sept. 8.
 Petrol Locomotive.* (12) Sept. 8.
 The Last Broad-Gage Railway in North America, the Carillon & Grenville Ry., Canada.* (13) Sept. 14.
 Self-Discharging Hopper Ballasting Railway Wagon.* (12) Sept. 15.
 Mallet Compound Superheater Locomotive, Delaware and Hudson Railway.* (12) Sept. 15.
 Women's Parlor Car for the Burlington.* (15) Sept. 15.
 Water Circulation in Locomotive Fireboxes.* H. B. Macfarland. (15) Sept. 15.
 Baltimore & Ohio Mountain Division Improvements.* (15) Sept. 15.
 The Sullivan Anti-Creeper.* (15) Sept. 15.
 New Rail Relaying Machine.* (15) Sept. 15.
 Railroad Main-Line Revision between Pueblo and Walsenburg.* (14) Sept. 16.
 Mallet Articulated Locomotives for the Southern Pacific Co.* (18) Sept. 16.
 How to Remedy Soft Spots in the Roadbed.* (Paper read before the Roadmasters' and Maintenance of Way Assoc.) (18) Sept. 16; (14) Sept. 30.
 Power Station and Transmission Line of the Hoosac Tunnel.* (17) Sept. 16.
 Switching Locomotive Built by Terre Haute, Indianapolis & Eastern.* (17) Sept. 16; (18) Sept. 30.
 Construction Work on the Key West Extension of the Florida East Coast Railway.* L. M. Thatcher. (13) Sept. 21.
 Alaska Northern Railway.* (15) Sept. 22.
 Curves of Mean Effective Pressure of Locomotives.* P. T. Warner. (47) Sept. 22.
 Non-Ferrous Metals in Railway Work.* George Hughes, M. Inst. C. E. (Paper read before the Inst. of Metals.) (22) Serial beginning Sept. 22; (47) Sept. 22; (11) Sept. 22.

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Railroads—(Continued).

- Mountain Type Locomotives for the Chesapeake & Ohio Ry.* (18) Sept. 23; (25) Oct.; (15) Sept. 22.
- Concrete Snow Sheds, Great Northern Ry.* (18) Sept. 23.
- Benefits Derived from the Use of the Brick Arch.* (Locomotives.) (Abstract of paper read before the Travelling Engrs. Assoc.) (18) Sept. 23; (94) Oct.
- Flange Lubricators on Electric Locomotives, St. Clair Tunnel.* (18) Sept. 23.
- The Railway Construction Situation in Guatemala and Salvador.* F. Lavis. (14) Serial beginning Sept. 23.
- Wear of Rails under Electric Traction. (13) Sept. 28.
- Scientific Development of American Railways.* S. M. Felton. (Paper read before the Mass. Inst. of Tech.) (15) Sept. 29.
- Concrete Engine House; Elgin, Joliet & Eastern.* (15) Sept. 29.
- The Cleveland Short Line Railway.* (14) Serial beginning Sept. 30.
- Four-Cylinder Locomotive; Paris-Lyons-Mediterranean Railway.* (11) Sept. 8; (18) Sept. 30.
- Revising Two-Story Girder Construction under Heavy Traffic.* (14) Sept. 30.
- Passenger Car Equipment for the Missouri Pacific-Iron Mountain System.* (18) Sept. 30.
- News of Railroad Construction in China.* (18) Sept. 30.
- Choosing a Locomotive.* G. Greenough. (Abstract of paper read before the Railway Club of Pittsburg.) (18) Sept. 30.
- An Efficiency Experiment Station for the Railroads. Benj. A. Franklin and others. (9) Oct.
- The Grand Trunk Pacific Railway.* Frederick A. Talbot. (9) Oct.
- New Locomotive Terminal Facilities at Bloomington, Ill.* (25) Oct.
- Lubrication of Locomotives Using Superheated System. (Paper read before the Travelling Engrs. Assoc.) (25) Oct.; (18) Sept. 9.
- Oil Burning Passenger Locomotives 2-6-6-2 Type, Southern Pacific.* (25) Oct.
- Rapid Bridge Work on the Boston & Albany.* (15) Oct. 6.
- Interlocking at South West Junction.* (15) Oct. 6.
- New York Central's West Side Improvements in New York City.* (15) Oct. 6.
- Electric Locomotives for the Hoosac Tunnel, Boston & Maine R. R.* (96) Oct. 7.
- Boiler Wash Plant for the Richmond, Fredericksburg & Potomac R. R.* (18) Oct. 7.
- Public Service Railway of New Jersey.* (17) Oct. 7.
- Motor Cars for the Spiez-Frutigen Railway.* (17) Oct. 7.
- Single-Phase Locomotive for Midi Railway, France.* (17) Oct. 7.
- Les Chemins de Fer Français de 1905 à 1910.* Richard Bloch. (38) Sept.
- Essais de Traction Electrique par Courant Monophasé sur la Ligne Spiez-Frutigen (Suisse).* J. Bourdel. (33) Sept. 2.
- Les Locomotives Françaises et Etrangères à l'Exposition de Turin (1911).* L. Pierre-Guédon. (33) Sept. 23.
- Der Bau des Bahnsteigtunnels auf Bahnhof Elbing.* Metzel. (49) Pt. 7.
- Formänderungen am schwebenden Schienensosse.* H. Saller. (102) Serial beginning Sept.
- Untersuchung der Dampf- und Kohlen-Verbrauchsziffern der Stumpff'schen Gleichstrom-, der Kolbenschieber- und der Lentz-Ventil-Lokomotive, nach den Vergleichsversuchen der preussisch-hessischen Staatsbahnverwaltung.* K. Pfaff. (102) Serial beginning Sept. 1.
- Die Hochbauten der Bodensee-Toggenburg-Bahn und Rickenbahn.* (107) Sept. 2.
- Versuche über den Widerstand von Dampflokomotiven.* R. Sanzin. (48) Sept. 2.
- Die Pressluft-Entstäubung bei den Eisenbahnen.* H. Jacobi. (102) Sept. 15.
- Weitere Fortschritte bei Viehwagenwäuschen.* Richter. (102) Sept. 15.
- Elektrische 2 B + B 2 — Lokomotive für den Betrieb der Pennsylvania-Eisenbahn.* Bock. (102) Sept. 15.

Railroads, Street.

- Tramcar-Meters, and the Economical Results of their Adoption on a Tramway System.* Alfred Sharnau Giles. (63) Vol. 184.
- New Carhouse of the Bay State Street Railway at Brockton, Mass.* (17) Sept. 9.
- Paving and Care of Streets by Street Railway Companies. (13) Sept. 21.
- Clearance of Rapid-Transit Subways and Tunnels.* (13) Sept. 21.
- A Large Cofferdam Built with Steel Sheet Piling. (For tunnel).* (13) Sept. 21.
- The Electric Terminal Arcade of the Oklahoma Railway Company.* H. C. Martin. (17) Sept. 23.
- Composite Rails for Chicago Street Railways.* Wm. A. Del Mar, Assoc. Am. Inst. E. E. (13) Sept. 28.
- Arch-Roof Cars Built by the Chicago Railway.* (17) Oct. 7.
- Composite Wood and Steel Cars for Kansas City.* (17) Oct. 7.
- Die Verkehrs- und wirtschaftliche Entwicklung der Londoner elektrischen Untergrundschnellbahnen.* Franz Musil. (53) Sept. 22.

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Sanitation.

- The Construction and Setting-Out of the Low-Level Sewer between Cannon Street and Belgrave Square. Lawrence Trench Wilson. (63) Vol. 184.
- The Sewerage System of Chicago.* C. D. Hill. (4) Sept.
- The Sewage Disposal Problem in the United States and Abroad.* Langdon Pearse. (4) Sept.
- Trials of Precipitants at the Sewage Disposal Works, Wakefield. J. P. Wakeford. Assoc. M. Inst. C. E. (Paper read before the Royal Sanitary Inst. Congress.) (104) Sept. 1; (14) Sept. 23.
- Cemetery Construction and Subsoil Drainage, With Particular Reference to the Handsworth Cemetery.* H. W. Barker, Assoc. M. Inst. C. E. (Paper read before the Inst. of Mun. and County Engrs.) (104) Sept. 1.
- Electricity Supply and Exhaust Steam Heating.* Francis H. Davies. (26) Sept. 8.
- Design of a Sewage Disposal Scheme for a Seaside Town.* C. J. Torath, Assoc. M. Inst. C. E. (104) Sept. 8.
- Swamp Reclamation on a Large Scale. (From *Illinois Central Magazine*.) (18) Sept. 9.
- Economics of Hot Water Heating.* Ira N. Evans. (64) Sept. 12.
- Sewer Construction in St. Louis, and Methods of Sewer Design—Brick and Pipe Sewers.* W. W. Horner. (86) Serial beginning Sept. 13; (14) Oct. 7.
- Residential Sewage Disposal Plants.* R. Winthrop Pratt. (96) Sept. 14.
- some Characteristics of the Birmingham Sewage. F. R. O'Shaughnessy. (Paper read before the Managers of Sewage Disposal Works at Birmingham.) (104) Sept. 15.
- Rope-Driven Centrifugal Pumps for Sewage at Providence.* (14) Sept. 16.
- The Designing, Mapping and Reporting of Drainage Systems. J. L. Parsons. (86) Sept. 20.
- Sludge Disposal with Special Reference to Different Methods for Removing Water. Fr. Spillner. (86) Sept. 20.
- Modern Heating Practice. Konrad Meler. (From *The Heating and Ventilating Magazine*.) (96) Serial beginning Sept. 21.
- A German Study of Sludge Drying. Kenneth Allen, M. Am. Soc. C. E. (13) Sept. 21.
- Pumping Plant for Sewerage and Water Works.* Alfred J. Price. (Abstract of paper read before the Inst. of Municipal and County Engrs.) (13) Sept. 21.
- Imhoff Sewage Tanks at Winters, Cal.* (14) Sept. 23.
- Construction of the Richmond Hill Trunk Sewer, Borough of Queens.* (14) Sept. 23.
- Method and Cost of Garbage Disposal at Columbus, Ohio: A Description of the Plant and Its Cost.* (86) Sept. 27.
- Some Modern Features in Connection with Sewage Disposal. T. Aird Murray. (Paper read before the Union of Saskatchewan Municipalities.) (96) Sept. 28.
- Design and Cost of a Concrete Box Culvert.* C. R. Thomas. (96) Sept. 28.
- The Laying and Testing of Earthenware Sewers and Drains. A. Sayers. (Abstract of paper read before the Royal Sanitary Inst. Congress.) (96) Sept. 28.
- The Havana Sewerage and Paving Contract, the Largest Contract for Sanitary Works ever Made.* (14) Sept. 30.
- Heating and Ventilating Hospital Buildings, Overbrook, N. J.* (70) Oct.
- Standards of Ventilation. Evans. (Paper read before the Am. Soc. of Heating and Ventilating Engrs.) (70) Oct.
- Typical Specifications for Dredge Work for Alluvial Land Drainage, Mississippi Valley. (86) Oct. 4.
- Methods and Costs of Constructing a Reinforced Concrete Culvert.* D. W. Stradling. (86) Oct. 4.
- Heating a New York Apartment House.* (101) Oct. 6.
- Septic Treatment of Creamery Sewage. James Ten Broeck Bowles. (14) Oct. 7.
- Sewage Disposal and Sludge Production at Leeds. (14) Oct. 7; (104) Sept. 22.
- Sewer Gas and Concrete. (14) Oct. 7.
- New Apparatus for Sewage Purification.* (19) Oct. 7.
- Graphische Darstellung der Vorgänge in einer Trockenanlage.* Karl Reyscher. (48) Sept. 16.

Structural.

- The Strength of Cast-Iron Punch and Riveter Frames.* A Lewis Jenkins. (55) Vol. 32.
- The Elastic Limit of Manganese and Other Bronzes.* J. A. Capp. (55) Vol. 32.
- The Corrosion of Metals.* Percy Longmuir. (71) Vol. 83.
- The Influence of Impurities on the Corrosion of Iron.* John W. Cobb. (71) Vol. 83.
- The Action of Aqueous Solutions of Single and Mixed Electrolytes Upon Iron.* J. Newton Friend and Joseph H. Brown. (71) Vol. 83.
- The Strengthening of the Roof of New Street Station, Birmingham. William Dawson. (63) Vol. 184.

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- Proposed Standard Methods of Testing Drain Tile.* C. M. Powell. (67) Sept.
 The Problem of Waterproofing, the Properly Built Concrete House is Damp Proof.*
 Ralph C. Davison. (67) Sept.
 A Cross-Beam Concrete Floor System.* Arthur Peabody. (67) Sept.
 Wood Preservation.* (87) Sept.
 British Standard for Reinforced Concrete Construction.* (From *Concrete and Construction Engineering*.) (96) Serial beginning Sept. 7.
 The Influence of Building Regulations on Architecture. H. D. Searles-Wood.
 (Paper read before the Royal Sanitary Inst. Congress.) (104) Serial beginning Sept. 8.
 Conditions Affecting Efficient Construction Work in the Philippines: Tables and
 Diagrams for Designing Reinforced Concrete Slabs and Girders.* R. A.
 Small. (86) Sept. 13.
 Standard Test Bar for Cast Iron. Richard Moldenke. (Paper read before the
 Am. Foundrymen's Assoc.) (47) Sept. 15.
 Corrosion of Brass Foundry Products. William Vaughan. (Paper read before
 the Am. Brass Founders' Assoc.) (47) Sept. 15.
 School Classrooms: A Comparative Study of English and Foreign Methods of
 Planning.* William H. Webb. (Paper read before the Royal Sanitary Inst.
 Congress.) (104) Sept. 15.
 The Power, Engine and Blooming-Mill Buildings of the American Rolling Mill
 Company.* (14) Sept. 23.
 Pneumatic Caisson Dam Foundations, United Fire Companies Building.* (14)
 Sept. 16.
 Boiler House of the American Roller Mill Company.* (14) Sept. 16.
 Riveted Connections of New Reinforced Concrete Girders to Old Concrete Columns.*
 (14) Sept. 16.
 Shoring the Steel Framework of the Grand Central Terminal, New York.* (14)
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 Concrete Warehouse for the Hood Rubber Company.* (14) Sept. 16.
 Government's "Cement Gun" A Success: Device Perfected After Many Tests. (For
 coating structures with cement.) (62) Sept. 18.
 Field Work in Concrete at University of Wisconsin.* Arthur Peabody. (Paper
 read before the Wisconsin Soc. of Engrs.) (96) Sept. 21.
 The Mechanical Properties of Hard-Drawn Copper.* D. R. Pye. (Paper read
 before the Inst. of Metals.) (11) Sept. 22.
 The Corrosion of Brass.* Paul T. Brühl. (Paper read before the Inst. of
 Metals.) (47) Serial beginning Sept. 22.
 A 375-Foot Chimney at Easton.* Thomas S. Clark. (14) Sept. 23.
 Constructing the Walls of a Reinforced Concrete Factory on a Horizontal Plat-
 form.* (14) Sept. 23.
 The Wislizenus Smokestack.* O. H. Hahn. (16) Sept. 23.
 Construction of Reinforced Concrete Roof.* W. B. Turner. (62) Sept. 25.
 The Use of Reinforced Concrete in Gas Works.* Henry W. Douglas. (Paper read
 before the Michigan Gas Assoc.) (24) Sept. 25.
 Tests of the Strength of Flat Steel Plates.* Tandy A. Bryson. (Abstract of
Bulletin, Rensselaer Poly. Inst.) (13) Sept. 28.
 Inland Steel Company's Bolt and Rivet Works.* (20) Sept. 28.
 The Properties of Douglas Fir; a Study of Structural Timber.* (13) Sept. 28.
 The Wiederholt Chimney.* (20) Sept. 28.
 Waterproofing a Basement Floor. (14) Sept. 30.
 An Arch Roof of Reinforced Concrete.* (14) Sept. 30.
 Use of Reinforced Concrete in Gas Works.* Henry W. Douglas. (Paper read
 before the Michigan Gas Assoc.) (83) Oct. 2.
 Semi-Concrete Condenser House at Adrian.* E. F. Lloyd. (Paper read before
 the Michigan Gas Assoc.) (83) Oct. 2; (24) Sept. 25.
 The Effect of Pigments in Linseed Oil. H. A. Gardner. (Abstract from *Journal
 of Industrial and Engineering Chemistry*.) (13) Oct. 5.
 Failure of a Roof of a Reinforced-Concrete Building, Winnipeg, Man.* (13)
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 The Open-Hearth Building of the American Rolling Mill Company.* (14) Oct. 7.
 Reconstructing and Underpinning a Four-Story Brick Front.* (14) Oct. 7.
 Creosoting Plant of the Buffalo, Rochester & Pittsburgh Railroad.* Grant B.
 Shipley. (14) Oct. 7.
 Preservation of Timber from Decay. W. F. Goltra. (18) Serial beginning
 Oct. 7.
 Silage and Concrete Silos.* (From *Machinery*.) (19) Oct. 7.
 Instructions Britanniques relatives aux Constructions en Ciment Armé. (84)
 Serial beginning Aug.
 Le Calcul des Poutres en Béton Armé.* J. Rieger. (33) Sept. 23.
 Die Berechnung eines mehrfach gezwungenen Trägers mittels des Stufenverfahrens.*
 A. Grube. (49) Ft. 7.
 Erhärtung von Luftkalkmörtel bei zeitweiser Anfeuchtung.* H. Burchartz. (80)
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Structural—(Continued).

- Rheinspeicher für die Stadt Köln.* Adam Hanst. (78) Serial beginning Sept. 13.
 Erweiterungsbau der Papierfabrik Köslin, Akt.-Ges. in Köslin.* H. Foth. (78) Sept. 13.
 Die Biegunbeanspruchungen in der Sohle von freistehenden Behältern mit rechteckigem Grundriss.* Robert Bortsch. (78) Serial beginning Sept. 13.
 Das Stadt-Theater in Basel.* (107) Sept. 16.
 Die Stossdichtung von Steinzeugrohren.* Julius Barth. (80) Sept. 2.
 Das Verhalten des Querkontraktionskoeffizienten des Eisens bis zu sehr grossen Dehnungen.* Rudolph Plank. (48) Sept. 2.

Topographical.

- Surveying with a Camera.* Stephen Mitchel Dixon. (63) Vol. 184.
 A Simple Instrument for Measuring Areas.* George Muntz. (13) Sept. 21.
 A Permanent Bench Mark System in New Orleans.* (14) Oct. 7.

Water Supply.

- The Hydrostatic Chord with Discussion of its Application in the Design of Large Pipes of Reinforced Concrete. Raymond D. Johnson. (55) Vol. 32.
 The Testing of Water Wheels After Installation.* C. M. Allen. (55) Vol. 32.
 Experiments on the Flow of Water over Sharp-Edged Circular Weirs.* Harold John Frederick Gourley. (63) Vol. 184.
 Great Water Power Sites.* Henry Hale. (10) Sept.
 The Design and Construction of the Meridian, Idaho, Water-Works System, with Some Costs.* Edmund M. Blake. (86) Sept. 13.
 An Interesting Design of High-Duty Pumping Engine. (Providence water-supply.)* (13) Sept. 14.
 Operating Results of the Nashville Purification Works.* (14) Sept. 16.
 Conduit Construction in Denver.* (14) Sept. 16.
 Automatic Regulating Devices for Water Filtration Plants.* Thomas Fleming, Jr. (62) Sept. 18.
 Design of Concrete Fountains and Pools for South Parks, Chicago, and Methods and Costs of Construction with Glue Molds.* C. C. Anthony. (86) Sept. 20.
 Costs per Acre Foot of Small Electrically Driven Pumping Plants. E. C. Metz and C. L. Fraser. (Abstract from *Journal of Electricity, Power and Gas.*) (86) Sept. 20.
 Pumping Plant for Sewerage and Water-Works.* Alfred J. Price. (Abstract of paper read before the Inst. of Municipal and County Engrs.) (13) Sept. 21.
 The Design of Earth Dams.* Clarence T. Johnson. (From *Michigan Technic.*) (14) Sept. 23.
 Operation of the New Orleans Filters. (14) Sept. 23.
 Bottom Heading Driving on the Hunter Brook Tunnel, Catskill Aqueduct.* Arnold Becker. (14) Sept. 23.
 The Hydraulic Development for the Pejepscot Paper Mill.* (14) Sept. 23.
 Protecting Irrigation Canals. (14) Sept. 23.
 Power Development on the Los Angeles Aqueduct.* Le Roy W. Allison. (64) Sept. 26.
 An Emergency in the Operation of an Iron Removal Plant. (14) Sept. 30.
 Electric Energy from Coal for Irrigation Farming in Colorado.* C. H. Williams. (27) Sept. 30.
 An Automatic Pneumatic Pumping Plant at Shirley, Ind.* (60) Oct.
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 Water Purification Works at Toledo, Ohio.* D. H. Goodwillie. (13) Oct. 5.
 Cause and Sequelæ of the Water-Borne Typhoid Outbreak at Mankato, Minn., in 1908.* (13) Oct. 5.
 The Destruction of the Austin Dam, an Account of the Conditions which Caused its Failure on September 30.* (14) Oct. 7; (13) Oct. 5.
 High-Head Hydroelectric Development in New York.* (27) Oct. 7.
 The Rapid Filter Plant at Minot, North Dakota.* (14) Oct. 7.
 The Hydroelectric Development at Wendell, Mass.* (14) Oct. 7.
 Ueber die Grösse des Wasserdruckes im Boden.* H. Engels. (49) Pt. 7.
 Fernschwimmervorrichtung für Wasserstandregler.* C. Schmitthenper. (48) Sept. 9.
 Die Rohrfrage auf der Internationalen Hygieneausstellung in Dresden.* (50) Sept. 14.

Waterways.

- The Bar Harbours of New South Wales.* Gerald Harnett Halligan. (63) Vol. 184.
 Sand-Movements at Newcastle Entrance, New South Wales. Christopher Watkins King. (63) Vol. 184.
 Fremantle Harbour-Works, Western Australia.* Charles Stuart Russell Palmer. (63) Vol. 184.

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Waterways—(Continued).

- The Winning of Coastal Lands in Holland.* Alfred Edward Carey. (63) Vol. 184.
- Tree-Groynes.* Leonard Percival Hodge. (63) Vol. 184.
- New York State Barge Canal.* William B. Landreth, M. Am. Soc. C. E. (Paper read before the Boston Soc. of C. E.) (1) Sept.
- Notes on Pile Protection. T. Howard Barnes, M. Boston Soc. C. E. (1) Sept.
- Unit Costs of Work on the Panama Canal for the Second Quarter of 1911. (86) Sept. 13.
- Internal Waterways of Germany. (11) Sept. 15.
- The "Roller Case" Pile-Driver used in the Construction of Permanent Trestle Extension on the Ogden-Lucin Cut-Off.* C. M. Kurtz. (13) Sept. 21.
- Hydraulic Excavation in Panama.* (12) Sept. 22.
- Dredgers on the New York State Barge Canal.* (12) Sept. 22.
- Progress of New York's State Barge Canal.* Nobel E. Whitford. (46) Sept. 23.
- Deep-Hole Rock-Drilling on the New York State Barge Canal.* Lucius I. Wightman. (13) Sept. 28.
- Side-Haul Railway Dry-Dock for the United States Government.* (95) Oct.
- The Foundations of the Bellevue Hospital Boiler House. (East River.)* (14) Oct. 7.
- Steel Work Completed During August on the Canal Locks at Panama. (62) Oct. 9.
- Observations faites sur la Seine à Paris pendant la Grande Crue de 1910.* Delachenal et R. Lefort. (43) July.
- La Regularisation du Régime des Cours d'Eau.* Paul Lévy-Salvador. (33) Serial beginning Sept. 9.
- Die Zuidersee-Frage.* J. A. van der Kloes. (78) Sept. 13.
- Meer und Küste bei Wangeroog und die Kräfte, die auf ihre Gestaltung einwirken. W. Krüger. (49) Serial beginning Pt. 7.
- Der Bau des Panamakanals. Eugen Tincauer. (49) Serial beginning Pt. 7.

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